PETROLEUM WEEK

SEPTEMBER 20, 1957

■ A McGRAW-HILL PUBLICATION

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This ad originally appeared in the December, 1956 issues of OIL & GAS JOURNAL and PETROLEUM WEEK

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60-Second Summary / WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK

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September 20, 1957

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New drilling and production depth records keep popping up in the Southwest. State drilling records were set recently in Oklahoma and Texas, with the race continuing (page 9). A new producing depth record in Oklahoma (16,526-46 ft.) was set this week by No. 1 Krieger in Stephens County. And in Louisiana, the world's second deepest producer was completed. . . . p. 14

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For the benefit of those who might have just tuned in, the score on demand for this year is only 3.3%. That's the revised estimate of the Bureau of Mines. It confirms what many industry experts suspected some time ago. . . . p. 10

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Powder River Basin seems to be heading into a new and bigger—cycle. Oil activity in this Wyoming and Montana area has had its ups and downs, but it's moving briskly forward now. . . . p. 18

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The trend in crude and product transportation will be to bigness. Larger diameter pipelines will be built and tankcars will be larger, lighter, and more economical. . . . p. 58

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Electric motors are taking over a growing proportion of the muscle work in refineries. The reasons are the comparatively low initial and maintenance costs. . . . p. 44

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Junior engineers at Dowell, Inc., take three training courses in their first year. It's part of a broad program of on-the-job training for all employees. . . . p. 37

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Oil companies are finding it harder than ever to recruit good dealers. Prospective men either lack capital or don't consider service station operation attractive. . . . p. 54

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The new joint Iranian-Italian company plans to start simultaneous exploration on three areas in Iran. A Rome report that a U. S. firm would join the venture was denied this week by National Iranian Oil Co. chief Abdollah Entezam. . . . p. 48

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Some signs point to a slower rate of growth in U. S. gasoline consumption. Industry sources say the factors causing the lower-than-expected demand this year may continue to influence consumption in future years. . . . p. 9

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A tug-of-war over the imports program is becoming intense. New importers want upward adjustments of their "quotas," but some established importers say if this happens, they may withdraw their voluntary cooperation. . . . p. 9

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

September 20, 1957

Oil imports for the last half of 1957 will average 98,500 b/d more than the government wants. Data filed with imports boss M. V. Carson show that the companies plan to import an average of 854,200 b/d, compared to the government's proposed ceiling of 755,700 b/d.

The overcharge might run even higher. Here's why: Although nine importers have said they will cut down to, or below, their "allowable," they may change their plans if they see others exceeding their totals.

At any rate, it's obvious that importers will not—or cannot—fully comply with the government's program. To attain the average called for in the period ending next June 30, imports in the first half of 1958 would have to be slashed to around 655,000 b/d—and that appears highly unlikely.

The administration might be satisfied if the rate, rather than the average, is attained by mid-1958. That is, it might decide against mandatory action if the rate is within the ceiling by June 30, even though the year's average would be above it. This, however, would bring sharp protest from producers.

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West Coast producers fear that some companies will step up imports into that district, thus offsetting their curtailments in Districts 1-4. If so, the producers will seek to get the West Coast included in the imports restriction program, too.

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Military buying of jet fuel in the Caribbean is being challenged as inconsistent with the imports program. Eastern States Petroleum says that if national security dictates imports restrictions to strengthen the domestic industry, then it is unwise for the military to make purchases outside the U.S. Which, in effect, means domestic producers and refiners will lose markets for about 130,000 b/d. If price is the only factor, Eastern States argues, then domestic refiners should be permitted to import more low-cost crude.

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Texas production ran about 475,000 b/d (12.8%) below allowables in the first half of 1957. This failure to produce quotas was greater than normal because of the purchaser proration in many West Texas and North Texas fields, the Texas Railroad Commission said this week. East Texas fared best (96%), apparently because of nearness to shipping points during the oil-for-Europe program.

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The 1% hike in the federal gasoline tax is paying off handsomely—for the government. The Internal Revenue Service reports a gain of almost $428-million from that source for the 1957 fiscal year. The total was $1,458,217,000.

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Work on a Louisiana offshore natural gas pipeline is moving at a rapid clip. It is the 107-mi. TGT-CATC line linking huge East Cameron area reserves to TGT's System at Kinder, La. Brown & Root, Inc., the contractor, is working around the clock, hoping to finish in November.

IS A METAL DEACTIVATOR WORTH WHILE?

TENAMENE 60 pays off in case after case

Eastman Copper Chelating Additive

- **Inhibits gum formation in motor gasoline**
- **Stops color degradation in kerosene**
- **Reduces fuel oil clogging**
- **Improves stability of jet fuel**

Even trace amounts of copper can be extremely harmful to most petroleum products.

Eastman's metal deactivator, Tenamene 60, used in amounts from 1 to 3 pounds per 1,000 barrels, protects most petroleum products in storage and during use from the detrimental effects of copper-catalyzed oxidation reactions. A chelating agent, Tenamene 60 ties up the copper to form a non-reactive, non-catalytic compound.

Gasoline

Copper has a powerful pro-oxidant effect on gasoline and catalyzes normal gum-forming reactions. Its presence requires an excessive amount of antioxidant to obtain a satisfactory induction period. A more effective and a more economical method is to use Tenamene 60 in conjunction with a normal amount of antioxidant.

Refiners need Tenamene 60 for adequate protection of motor gasoline. The increased use of catalytically cracked stocks makes storage a particularly troublesome problem inasmuch as these stocks are more susceptible to oxidation and, hence, to the catalytic action of copper. The test data shown in the accompanying table below demonstrate the beneficial results obtained from the use of Tenamene 60 in a blended gasoline containing approximately 45% catalytically and thermally cracked stocks.

Effectiveness of Tenamene 60 in Protecting Gasoline

Sample	Induction Period	Peroxide Number	ASTM Gum	Copper Bish Gum
Unprotected Gasoline				
Initial	330	0.1	3.1	4.0
After 20 weeks at 110°F	—	30 +	116 +	575 +
Gasoline protected with Tenamene 60*				
Initial	780	0.1	3.1	4.0
After 20 weeks at 110°F	—	1.0	4.6	8.0

*2 lbs. per 1,000 bbls.

Alchemist's symbol for copper

Kerosene

When kerosene is copper-sweetened or contains dissolved copper from other sources, color degradation frequently occurs due to the catalytic action of the copper. The Saybolt color value of a typical untreated kerosene containing copper, heated for 24 hours at 212°F, changed from 25 to 14. Protected by just 2 pounds of Tenamene 60/1,000 barrels, the Saybolt color value of this same kerosene changed hardly at all...from 25 to 24.

Diesel and Home Heating Fuel

Two problems exist in the storage and use of diesel and home heating fuels. One is formation of copper-mercaptide, a waxy, jelly-like substance, on brass screens, nozzles and filters. The second is formation of an organic gum-like material that binds sludge. Tenamene 60 helps solve both problems by retarding the catalytic action of copper promoting these reactions.

Jet Fuels

Test results using a CFR fuel Coker* instrument show the addition of a small amount of Tenamene 60 increases significantly the stability of most jet fuels at high temperatures when these fuels contain copper. Tenamene 60 is approved and widely accepted for use in this type of fuel.

Tenamene 60 also should be evaluated as a means to improve the stability and performance of *turbine oils, bearing greases, hydraulic fluids* and *lubricants* subject to copper-catalyzed oxidation.

In case after case, use of Tenamene 60 insures optimum performance of gasoline, fuel oil, kerosene, jet fuels ...especially following prolonged storage.

Investigate the protection Tenamene 60 can bring your refinery products. For more information, write to EASTMAN CHEMICAL PRODUCTS, INC., a subsidiary of EASTMAN KODAK COMPANY, Kingsport, Tennessee.

*The CFR fuel Coker instrument (ERDCO rig) measures the rate at which pressure develops as heated fuel is circulated through a filter. Test results are relative and are given as "fuel goodness ratings."

Tenamene 60

EASTMAN METAL DEACTIVATOR

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Mass.; Cincinnati; Cleveland; Chicago; St. Louis; Houston. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle; Denver; Spokane; Phoenix.

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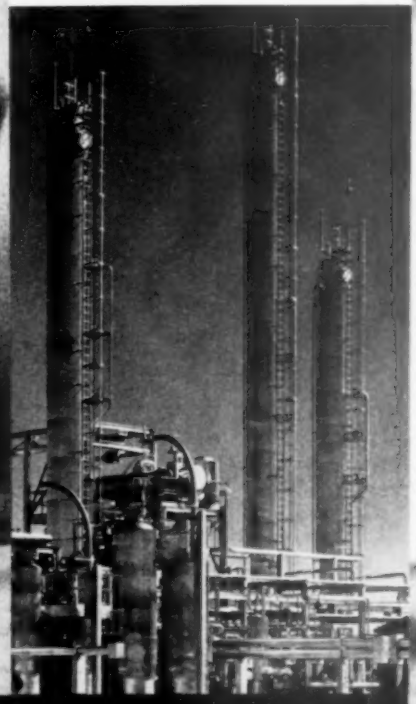

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Split Over Imports Plan Widens

The government's voluntary oil imports restriction program is already in deep trouble—with Administrator Matthew V. Carson caught in a "damned-if-you-do and damned-if-you-don't" squeeze between new and established importers.

Here's the situation: Newer importers—such as Tidewater and Indiana Standard—have made pleas for higher "quotas." Otherwise, they say, they will be unfairly put at a competitive disadvantage with the established importers (PW—Sep.13'57,pp6,11).

But the "established" importers don't feel they should make further cuts if others are to get increases.

Gulf Oil Corp., for example, warns that it will have to reconsider its earlier agreement to go along with the voluntary program if "substantial" adjustments in allocations are allowed others.

David Proctor, executive vice-president of Gulf, reminded Carson in a letter released Monday that Gulf has been an importer since before 1920—and has invested heavily in East Coast refineries "designed primarily for the use of foreign crude."

Proctor says that, under the government program, Gulf must trim its planned imports by 41,400 b/d. This, he says, will bring a reduction in the company's foreign production, and force it either to lay up tankers or to throw them on the depressed charter market at a loss.

Gulf warns of a "chain reaction" among other importers if one or more is granted a substantial incease on the basis of alleged inequities.

"We are concerned with any action that may change the current program," Proctor said in his letter to Carson.

Other established importers are likely to express views similar to Gulf's.

Standard Oil Co. of California, another established importer, also warned the government this week against changing the formula. However, the company did not threaten reconsideration of its agreement to cooperate if adjustments are made.

Gulf's stand—when considered in the light of statements already made by Tidewater—appears to cast strong doubt on whether the voluntary program can be made to work.

Tidewater's president, David T. Staples, after requesting a higher "quota" last week, told newsmen he can't say now whether his company can or will stay in the voluntary program in the event that it is denied relief.

At present, it appears the government isn't likely to make any major changes. Thus, it will be up to the discontented newer importers to make the next move.

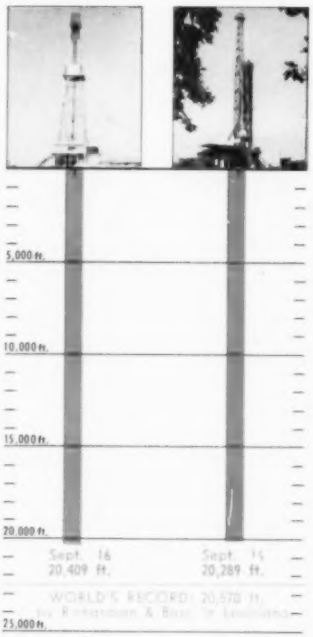
Carson has shown no intention of abandoning the Cabinet committee's approach—keyed to imports in 1954-56—in favor of a formula tied to refinery runs.

The imports administrator clearly accepts at face value the Cabinet committee's finding—that crude imports substantially above the recommended level will threaten national security—and the Cabinet group's general formula for holding such imports down.

This does not, however, completely rule out revisions by the government. It may grant relief in some cases. Asphaltic crudes, for example, may be exempted from the restriction program.

Deep Well Derby

TEXAS vs. OKLAHOMA



IN TEXAS: The Pan Am No. 1-CS University in Pecos County is still drilling after hitting a new state record of 19,078 ft. on Aug. 6.

IN OKLAHOMA: Magnolia's No. 1 Sterba-Ordivician in Caddo County is well past the old state record of 18,158 ft.—and is still going.

(IN LOUISIANA, meanwhile, Richardson & Bass et al have completed the world's second-deepest producing well—see page 14.)

Slower Growth Rate for 'Gas'?

The factors influencing the poorer-than-expected gasoline demand this year may continue to hold down the rate of growth in future years.

That is the opinion held by many industry experts who are studying the performance of the market to determine just what happened to domestic gasoline consumption.

Domestic demand in the first half, which averaged 3,762,000 b/d, showed a gain of only 55,000 b/d, or 1.5%, over the first six months of 1956.

Industry estimates, made early this year, were that domestic gasoline demand in the first half would run between 4% and 5% over 1956.

Demand for all major products in 1957 is running below earlier estimates, as the revised Bureau of Mines' data show (page 10).

But the industry's big concern is over the fall-off in gasoline demand—because of the large share (42%) of over-all petroleum consumption accounted for by motor fuel.

The lack of an upturn in business in the first half and a change in the automotive habits of consumers are

cited as the primary reasons holding down gasoline demand this year.

Petroleum economists generally had expected business activity to rise in the first half. And the anticipated higher rate of production would, of course, have meant more goods moving, and a resultant higher commercial demand for gasoline.

But the Federal Reserve Board's index of industrial activity for the first half shows no significant change from the first six months of 1956.

Bad weather in many parts of the country last spring reduced pleasure driving and cut into the farm consumption of gasoline.

The industry's real concern is over individual consumer automotive habits, since they could represent a significant change of long-range duration.

Over the years, the miles driven per family has been slowly but steadily rising. Also, of course, the increase in families owning cars has been an important factor.

But now, with automobile registrations at an all-time high, some industry experts wonder if a change is shaping up.

The change in automobile usage boils down to less driving per vehicle.

And it is due to several factors, according to the experts. Primarily, they are:

- Overcrowded and poor highways in many areas discourage both weekend and vacation driving.
- More conveniences at home, such as air conditioning and television, are making "stay-at-homes" out of many motorists who heretofore were frequent weekend travelers.
- Steadily mounting retail gasoline prices, the result of both product price boosts and tax increases, have tended to cut down driving.
- The increase in the number of two-car families is reducing the mileage per vehicle, and, of course, the gasoline consumption per car.

The overcrowded highway situation is considered by most industry observers to be the most important factor tending to hold down the growth in gasoline consumption.

Some of the other reasons why the rate of growth in demand is being curtailed, the experts believe, really stem from this lack of adequate roads.

And there is little chance that the present rate of highway construction will bring a significant improvement in driving conditions soon.

A few toll superhighways have been completed recently. But the vast 13-year interstate highway building program is moving slowly.

U.S. Supply and Demand, All Oils

(thousands of b/d)

	Actual 1st qtr.	Actual 2nd qtr.	Est. 3rd qtr.	Est. 4th qtr.	Volume	Est. 1957 % Change from 1956
Domestic Demand	**9,678**	**8,187**	**8,369**	**9,490**	**8,929**	**+ 2.0**
Gasoline	3,546	3,975	4,101	3,835	3,866	+ 3.1
Residual	1,796	1,394	1,288	1,640	1,528	— 0.5
Distillate	2,440	1,219	1,218	2,105	1,743	+ 3.6
Kerosine	449	164	185	410	302	— 5.9
All Other	1,447	1,435	1,577	1,500	1,490	+ 1.3
Total Demand	**10,618**	**8,783**	**8,712**	**9,850**	**9,487**	**+ 3.3**
Gasoline	3,682	4,072	4,191	3,925	3,969	+ 3.2
Residual	1,932	1,512	1,368	1,720	1,632	+ 1.3
Distillate	2,675	1,347	1,283	2,180	1,868	+ 5.1
Kerosine	482	180	193	420	318	— 3.6
All Other	1,847	1,672	1,677	1,605	1,700	+ 4.7
Total New Supply	**9,897**	**9,736**	**9,228**	**9,340**	**9,548**	**+ 1.9**
Production	8,457	8,168	7,614	7,720	7,987	+ 0.6
Crude	7,624	7,364	6,861	6,895	7,183	+ 0.4
Other Oils	833	804	753	825	804	+ 2.2
Imports	1,440	1,568	1,614	1,620	1,561	+ 9.4
Crude	807	1,032	1,206	1,080	1,032	+10.5
Products	633	536	408	540	529	+ 7.3
Change in Stocks	**—721**	**+953**	**+516**	**—510**	**+61**	**—**
Crude	—124	+323	+ 97	0	+74	—
Products	—597	+630	+419	—510	+13	—
Crude Runs to Stills	**8,138**	**7,868**	**7,903**	**7,900**	**7,951**	**+ 0.2**

Demand Gain Is Cut to 3.3%

The Bureau of Mines' revised forecast for 1957 confirms what most industry experts have suspected: Total demand will show the smallest gain since 1954. For domestic demand, the growth will be the smallest since 1949.

The bureau's new estimate for the full year, released last week, places total demand for 1957 at an average of 9,487,000 b/d, a gain of 3.3% over 1956. The original forecast, made last January, estimated total demand at 9,808,000 b/d, a gain of 6.3%.

The new estimate of domestic demand is 8,929,000 b/d, up 2% for the year. This compares with the bureau's previous prediction of a hike in 1957 domestic consumption of 5.2% to an average of 9,289,000 b/d.

The bureau sees no chance for an increase in domestic crude oil production during the remainder of the year. Fourth-quarter crude output will average 255,000 b/d less than last year, confirming an earlier Petroleum Week forecast (PW—Aug.23' 56,p9).

The bureau's forecast of fourth-quarter domestic production of 6,895,000 b/d is only slightly higher than current production. This forecast of domestic production contrasts sharply with one by the Independent Petroleum Assn. of America this week that demand for domestic crude in the last quarter will average 7.2-million b/d.

The pressure could be strong to reduce domestic crude production even below the revised Bureau of Mines forecast if fourth-quarter imports are not held close to the level recommended by the government.

The bureau's forecast assumes that fourth quarter crude imports will have age 1,080,000 b/d (a rate that has been indicated by importers in estimates filed with the Texas Railroad Commission).

Indications that 1957 demand might not live up to advance billing cropped up in the first quarter, and became more pronounced in the second quarter.

In the first three months, domestic demand ran 220,000 b/d below estimates. In the second quarter, domestic demand was 192,000 b/d under the 1956 period, and 511,000 b/d below the bureau's earlier forecast.

Slightly higher-than-expected exports offset some of the decline in domestic demand, but total demand for both quarters was below the estimates.

Many experts expected as late as May that the decline in domestic de-

mand in the first part of the year would be made up in the second half.

The assumption was that the factors that hit first-half demand—peculiar weather and no rise in general business activity—would result in a much stronger second half.

But so far in the second half, the upturn in demand hasn't occurred and the bureau doesn't look for one in the last quarter.

Southern Alberta Is Active Again

The oil industry is swinging back to its oldest hunting grounds in Western Canada to give southern Alberta producing regions the belated benefits of modern techniques and experience.

Potentialities of the pioneer region as a combination old-timer and newcomer in oil industry operations highlighted the seventh annual field conference of the Alberta Society of Petroleum Geologists, held Sept. 11-14 at Lethbridge, Alta.

Through a variety of papers presented at the conference, the surface and subsurface features of the plains and foothills regions of Alberta received a thorough going-over at technical sessions conducted by the society.

T. A. Link, past president of the American Assn. of Petroleum Geologists, and president of Cree Oil of Canada, Ltd., says that "a swing back to southern Alberta is in evidence."

"The post-Leduc Pincher Creek gas discovery in the foothills, and the more recent Shell Oil Co. discovery in the same area, as well as the Savanna Creek find in the Rocky Mountains, all indicate that southern Alberta is now poised for more thorough searching and modern testing," he said.

Prior to the Leduc discovery in 1947, it was recalled, more holes per square mile had been drilled in southern Alberta in the search for oil than in the northern and central parts of the province.

As Link observed, this probably was due to the nearness to the oil fields in northern Montana as well as the accessibility of the area.

But immediately after the Leduc discovery, major exploration efforts shifted from these regions to the central and northern parts of Alberta.

Now it is the consensus of geologists that southern Alberta will again have its day.

Imports Formula Gets a Test

THE SETTING: A room in the Interior Dept. in Washington, filled with oil representatives listening to pleas by some importers for higher "quotas." Here, D. T. Staples, Tidewater's president, reads a statement.

THE QUESTION: Whether it's better to let some suffer "inequities," or to revise the formula. M. V. Carson (center), imports administrator, checks a point with two advisors, Robert Dwyer (left) and Ralph Fowler.

THE DECISION, still ahead, will have greater impact on newcomers, who feel that the formula freezes them out. At this session, Tidewater's Staples (left) and two associates, T. M. Dailey and E. C. Buckley.

Higher Imports and Rocky Mountain Oi

While foreign crude has made significant inroads into the total U. S. crude market in recent years, there have been some major shifts in the sources of domestic supply, too.

The map (right) shows the changes that have occurred in the past five years in the movement of domestic and foreign crude to the five refinery districts, expressed in percentages of the total crude supply used in each district.

The data are based on the Bureau of Mines report for June, the latest monthly report available, compared with the corresponding month of 1952.

Over-all, the nation's supply of crude expanded 1,098,000 b/d, to an average of 7,896,000 b/d, between June, 1952, and June, 1957. Foreign crude accounted for 566,000 b/d of the total increase (a gain of 97%), while domestic crude accounted for 532,000 b/d (a gain of only 8.5%).

The rapid rise of the Rocky Mountain area as a source of crude supply is the most significant change within the U. S.

The area was long closed in by lack of pipeline outlets. Five years ago the Rockies (District 4) supplied an average of 292,000 b/d to refineries, all but 66,000 b/d of which was used within the region.

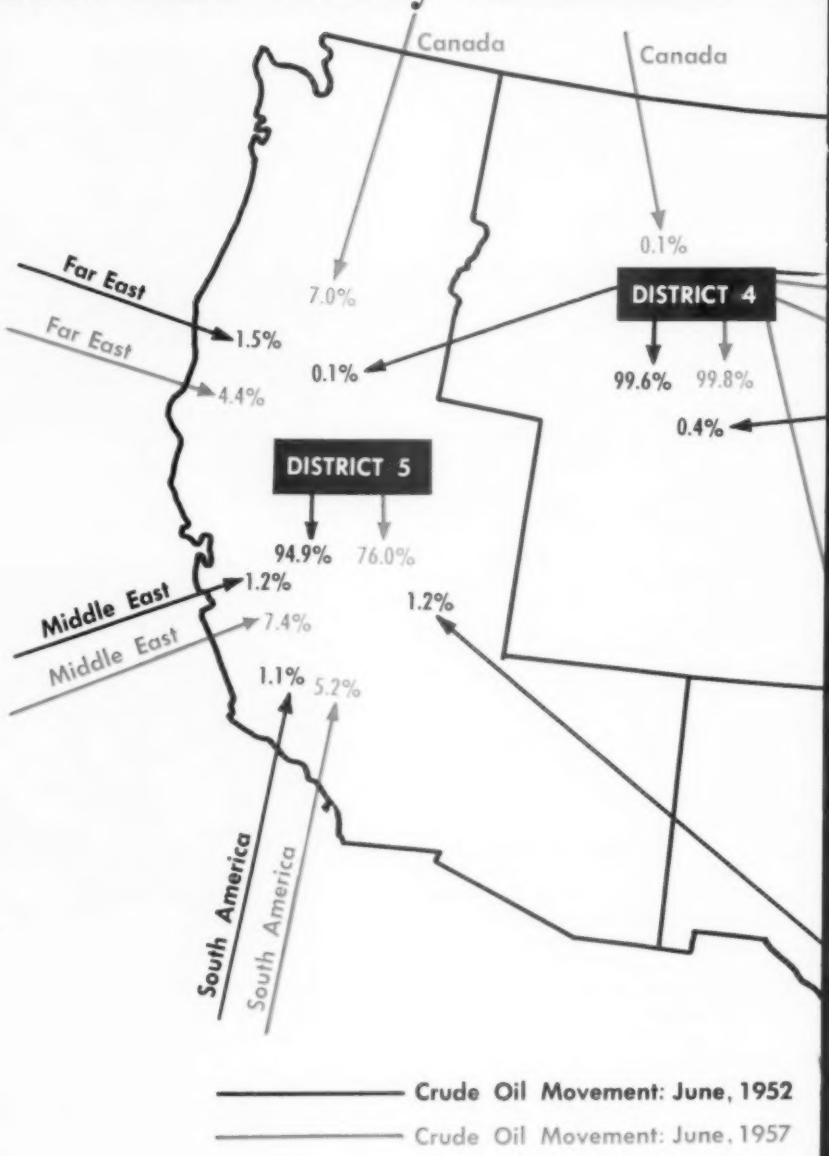
Now, though, the supply of crude from the Rockies has jumped nearly 85%, to 540,000 b/d. And crude from the region now reaches every refinery district east of the Rockies. Rocky Mountain crude now comprises 6.8% of the total used in the U. S.

And even with its growing shipments to other districts, locally produced crude accounts for 99.8% of the district's own supply—the highest percentage of any of the areas.

The combination of increased availability of Rocky Mountain oil and rising imports has reduced the share of the U. S. crude market held by the Southwest.

Production from the Southwest (District 3, comprising Texas, Louisiana, New Mexico, Arkansas, Mississippi, and Alabama) now accounts for 51.6% of the total U. S. market. Five years ago, the region had a 56.3% share of the total.

The biggest volume of the Southwest's production is used within District 3, accounting for 99.3% of the total crude demand in the area. But even within the Southwest, Rocky Mountain oil is having some impact, with 1,000 b/d now moving into the region.



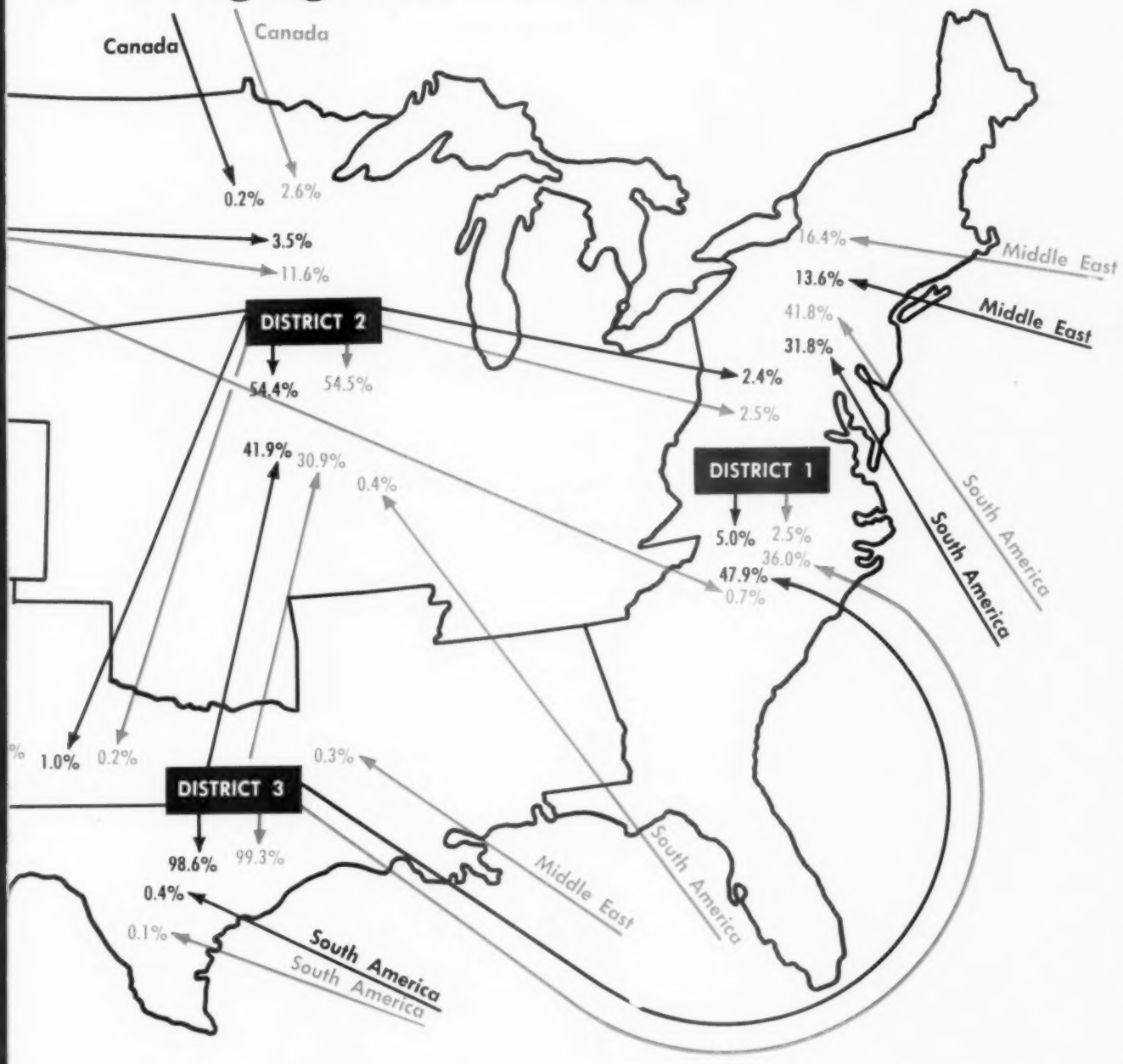
Outside of the Southwest, District 3 crude is losing ground both on its percentage share of the market and in actual volume supplied.

The largest volume of crude movement from the Southwest goes to the Midwest (District 2). And, while District 3 crude accounted for 41.9% of the total supply entering Midwest five years ago, its share of the Midwestern market is now only 30.9%.

In physical volume, movement of Southwest production into District 2 has dropped from 782,000 b/d in June, 1952, to 678,000 b/d last June.

A small increase in local production within District 2 took up some of the slack. But it was primarily a big hike in movement of Rocky Mountain oil into the Midwest that cut into the market for Southwest oil. Rocky Mountain oil now supplies 11.6% (253,000 b/d) of the Midwest market, compared with only 3.5% (66,000 b/d) five years ago.

Are Changing the U.S. Crude Market



Imports have made some inroads into the area, now totaling 66,000 b/d, or 3% of the market. Five years ago, imports into District 2 totaled only 2,000 b/d.

In the East Coast market, the share held by Southwest crude dropped from 47.9% (572,000 b/d) five years ago to 36% (489,000 b/d) this June.

Imported crude, which now has 58.3% of the East Coast market, made the biggest inroad. But 9,000 b/d of Rocky Mountain oil also is moving to the East Coast.

Imports have made a big inroad into West Coast markets, but the reason is lack of available domestic oil to fill refinery requirements.

California crude supplied 96.2% of the West Coast market in 1952; its share has now dropped to 76%. The balance is made up of imports. In June, 1952, about 1,000 b/d of Rocky Mountain oil and 12,000 b/d of Texas crude moved into the West Coast.

But such shipments were due to the Korean War.

East of the Rockies, crude from the Southwest has accounted for 253,000 b/d of the total 966,000 b/d increase in crude supply during the past five years.

The total volume supplied by the Southwest to Districts 1-4 averaged 4,071,000 b/d last June. All other areas east of the Rockies, with a total supply of 1,809,000 b/d in June, accounted for 384,000 b/d of the increase in total crude in Districts 1-4 since 1952. Imported crude accounted for 329,000 b/d of the increase.

What's New / IN THE INDUSTRY

New Louisiana Well Is Second Deepest

Louisiana, which already had the world's deepest well, now has the second deepest producer, too.

It is the Richardson & Bass (Louisiana account), J. Ray McDermott & Co., John W. Mecom, and Freeport Oil Co. No. 1 Humble-R. L. Price-LL&E-State Lease 2345, Plaquemines Parish.

It is less than 2 mi. from the record well, a Richardson & Bass, et al, well, which was drilled to 22,570 ft., and was completed from 21,419-65 ft.

The total depth of the new well is 20,186 ft. It was plugged back to 19,190 ft., and casing was perforated at 19,153-74 ft.

Tubing was run, and on eight-hour completion test through 8/64-in. choke, the well flowed at a rate of 861 b/d, with a gas volume of 1,968,000 cu. ft. daily. The gas-oil ratio was 2,286:1; tubing pressure was 10,750 psi.; casing pressure, 10,700 psi., and gravity was 39.9.

On subsequent 12-hour test through 6/64-in. choke, the well flowed at the rate of 480 b/d, with a gas volume of 1,097,000 cu. ft. daily. The gas-oil ratio was 2300:1; tubing pressure was 11,400; and the casing pressure was 11,100. The well is producing from lower middle Miocene.

It took four operators and four landowners to drill this well. It was started in May, 1954, by Richardson & Bass and Humble. It was drilled to 11,810 ft., then abandoned. Richardson & Bass wanted to go back into it, but Humble declined. However, Humble agreed to a farmout of the acreage.

The operators then went to 19,120 ft., where they lost the hole.

For a half interest, McDermott agreed to deepen the well.

All in all, the well has cost between $2.5-million and $3-million.

Alarm at Yorktown

Refinery workers were quick to respond when a fire broke out at American Oil Co.'s new plant at Yorktown, Va., last week.

Their efforts were successful in confining the blaze to the immediate area of a pump house.

No damage estimate has been announced, but it wasn't extensive.

•

Contract Awarded For R. I. Refinery

Commerce Oil Refining Corp. has awarded a contract for construction of a 40,000 b/d refinery at Jamestown, R. I.

Fluor Corp. will build the plant, aiming for completion by early summer of 1959.

Gulf Oil Corp. will supply the crude—from the Middle East—and will buy back products.

The project, originally announced more than 18 months ago, ran into a number of local legal delays (PW—Feb.8'57,p52), but a company spokesman said this week that these problems have been solved.

•

Meter Use Sought

Sun Pipe Line Co. wants to increase its use of displacement meters to measure crude oil trucked to its receiving stations.

It has asked the Texas Railroad Commission for permission to use the meters anywhere in Texas. Sun had previously been granted permission to use them in two Texas fields.

Sun says use of the meter eliminates the need for tankage at receiving points to meet the gauging and testing required under the commission's oil measurement rule.

•

Phillips Petroleum Co. has established a separate electronic computing department. It will have an operations analysis division, a statistical and financial division, and a machine division.

It will help other departments determine where electronic equipment might be used. It will help them compute statistics and financial data, and it will operate the company's computers. At present, the company has four medium-sized machines.

•

Standard Oil Co. of California-Western Operations, Inc., has picked a new site for its proposed refinery in Hawaii.

The firm said this week it has negotiated a "conditional" agreement to buy a 312-acre tract at Barber's Point, on the island of Oahu, from the James Campbell Estate, of Honolulu.

Originally, the parent company had planned to build the refinery on the Army's Sand Island, in Honolulu Harbor. But, a Western official says, delay in the availability of Sand Island led the company to seek an alternate site.

•

A group of 14 students awarded scholarships by the Society of Exploration Geophysicists, Tulsa, started college geophysics studies this week in nine universities.

The one-year awards total $12,125. One is being financed by the society's general fund, the others by companies interested in the geophysical profession.

These include: Grant Body & Equipment Co., Mayhew Supply Co., Griffin Tank & Welding Service, Geophysical Service Inc., Texas Gulf Sulphur Co., Schlumberger Well Surveying Corp., Herb J. Hawthorne, Inc., Vector Mfg. Co., Southwestern Industrial Electronics Co., Superior Oil Co., Exploration Consultants, Inc., and Exploration Sales Corp.

•

A Federal Trade Commission hearing on the Gulf Oil Corp.-Warren Petroleum Co. merger got under way in Tulsa this week.

FTC contends that Gulf is attempting to corner a large share of the LPG market through the merger with Warren, which is one of the largest LPG producers in the country.

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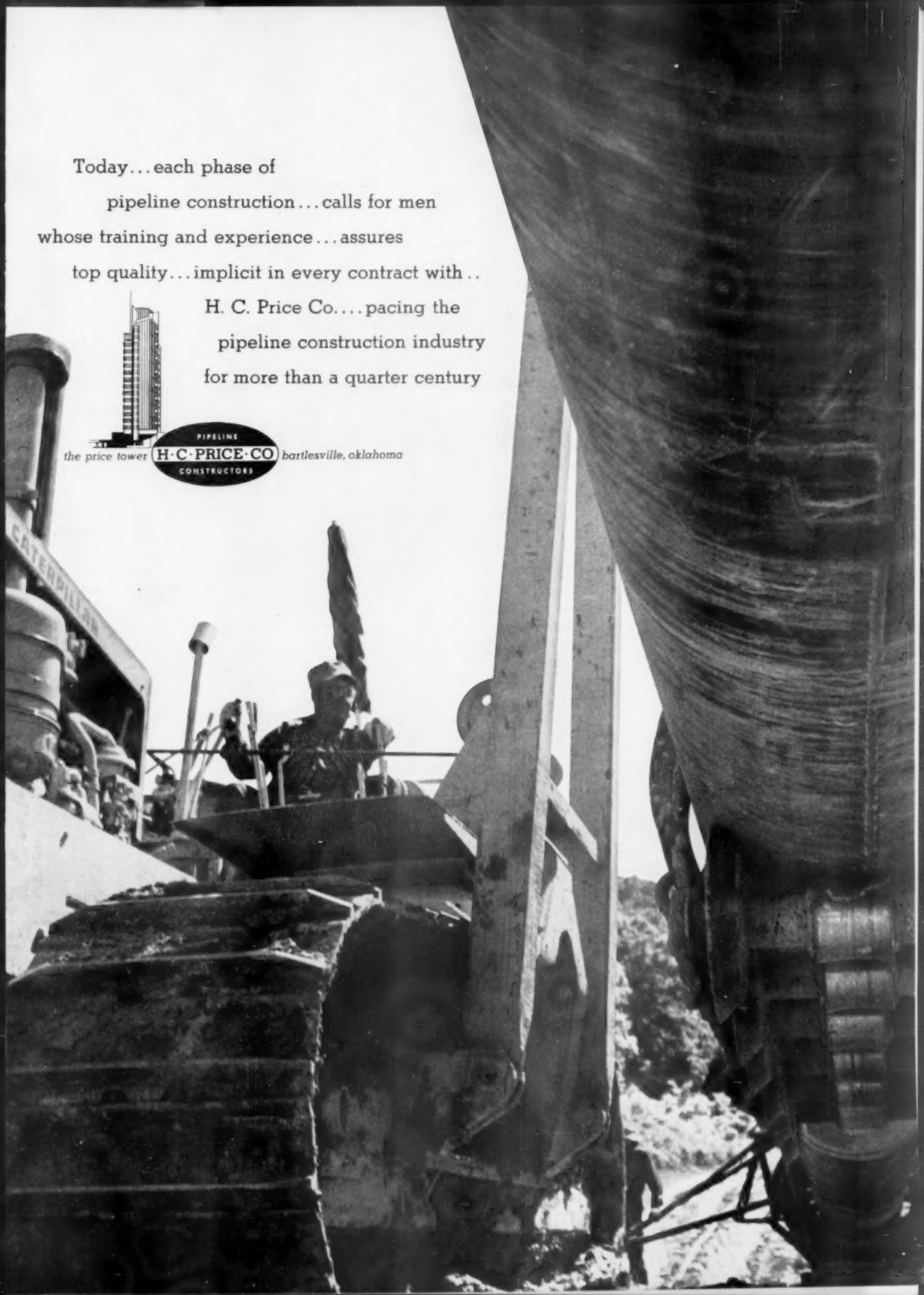

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
September 20, 1957

There's talk of a big new government oil agency in Washington. So far, it's nothing but talk, with no signs that the idea is getting serious consideration in upper echelons of the Eisenhower Administration. But it's the kind of thing that could snowball. Government oil officials who are pushing the idea argue that responsibility—and expert brainpower—for oil matters is now widely scattered. They say a centralized oil agency could handle emergencies like the Suez crisis, and administer complicated programs like the voluntary imports-restriction effort (page 9). Such an agency, its champions claim, would give the oil industry a real voice in Washington.

Any such proposal is bound to run into industry opposition. Some oil company men in Washington fear creation of a super oil agency would —during an unfriendly administration—play into the hands of those who favor end-use controls over oil and gas, and thus lead to government regulation.

•

FPC's financial-reports rule, if adopted, will be challenged in court. Independent natural gas producers have protested that the Federal Power Commission will exceed its authority if it goes through with a proposal to require reports on costs and revenues from operations connected indirectly, if at all, with gas production. Gas lawyers hope FPC will abandon the idea. But they admit that the commission has broad authority in ordering submission of data. So if the rule is adopted, producers probably will wait until the information is "misused"—as they suspect it will be—then file a court suit.

•

The Pentagon's purchases of foreign oil products are under attack. Military oil buyers have been accused of ignoring the Buy American law, which requires procurement officers to give domestic suppliers an edge over outside sources. The old controversy is being rekindled, now that purchases from continental U.S. refiners are being cut back as an economy move. The Independent Petroleum Assn. of America, switching from the oil imports-angle, claims that MPSA is clearly violating the law.

•

The Supreme Court may rule on Louisiana's tidelands within six weeks. Oil company lawyers speculate that this case will be among the first decided when the High Court reconvenes in early October. The ruling should determine whether Louisiana is entitled to a three-mile or a three-league offshore boundary. There's a chance the court will have something to say, too, about the Texas offshore boundary.

•

House antitrusters are nudging the government on its oil pipeline suit. The antimonopoly subcommittee expects to open by late October its examination of the Justice Dept.'s record on granting and enforcing consent decrees. The group's first question is whether oil pipelines have abided by the 1941 Elkins Act consent decree, which limits the return an oil company can collect from holdings in a common carrier pipeline. The Justice Dept. has been reported planning a suit against alleged violators of the decree. If it doesn't materialize, the subcommittee will want to know why.

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Powder River Is Opening Up Again

A new cycle of high-level exploratory activity is shaping up in the Powder River Basin of Wyoming and Montana.

The Powder River Basin isn't the birthplace, but it almost certainly could be called the cradle, of the Wyoming oil industry. It was the early developments in this basin that established Wyoming as a major oil producing state.

Historically, oil activity in the Powder River Basin has been somewhat cyclical in nature. The clearly-defined anticlines on the west side proved productive, in the early years of the century.

The next major spurt was around the end of World War II, when a series of heavy exploratory plays were developed along the stratigraphic traps which ranged generally along the west and the south flanks of the basin.

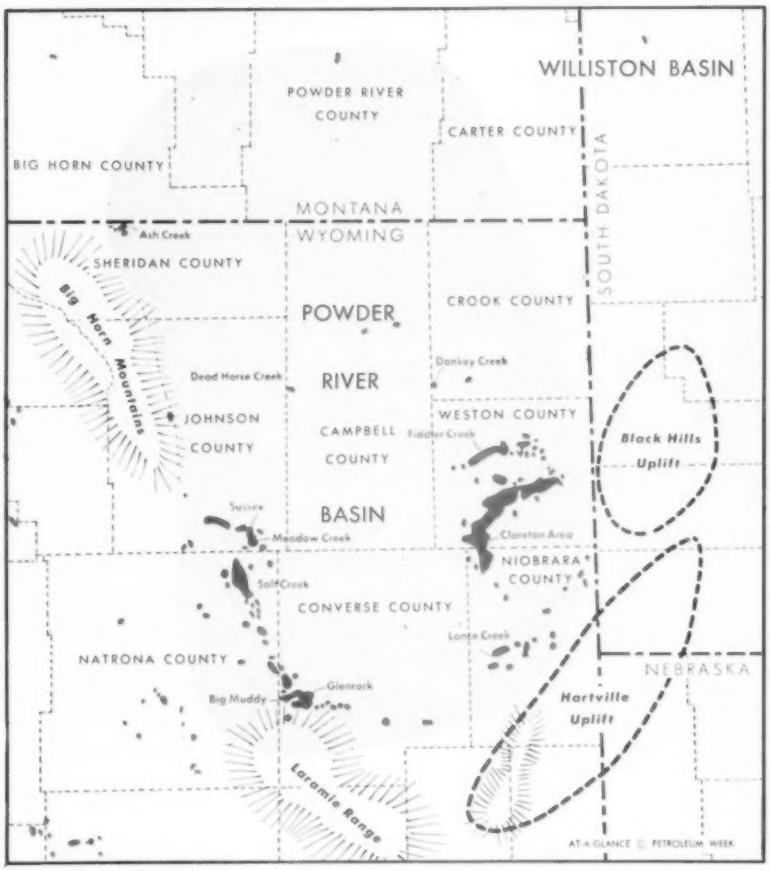
Activity peaks were reached in 1949-51 at Sussex-Meadow Creek-East Big Muddy-South Glenrock, on the southwestern end of the basin; in 1952 with development of Ash Creek, along the Wyoming-Montana border; and in 1954-55, with activity in the Clareton Area, along the basin's east flank.

The year-long flurry of drilling at Clareton subsided when it became evident that primary recovery from fields on this trend would not be as good as expected, and that secondary recovery was the only answer to a long-range payout.

Today's new cycle of activity springs from interest in production from the long-neglected, relatively shallow sands of the Mesaverde (Cretaceous). There's also new interest in the deeper possibilities of the fields that are concentrated on the western and southwestern flanks of the basin.

Additionally, continued stratigraphic exploration in northeastern Wyoming has met with success in the Dakota-Lakota (Cretaceous) formations (productive on the west side), offering further incentive for the current trend of activity.

The current cycle is bolstered by a history of success in older producing formations, as exploration moved inward from the east and west flanks of the Wyoming portion of the basin. Additional support comes from the successes posted in the Parkman (Mesaverde) and other Cretaceous formations, mostly on the east flank of the basin.



Traps in the Parkman sand, which is widespread through the basin, are stratigraphic. So a large number of exploratory tests must be drilled before the potentiality of the vast area can be determined. (The Powder River Basin is the second-largest in the Rocky Mountain area, being exceeded only by the Williston Basin.)

Most of the play in the central area of the Wyoming portion of the basin centers in Campbell County, focal point of Parkman exploration to date. This county ranks first (tied with Natrona) in the state in wildcats completed so far this year, with 21.

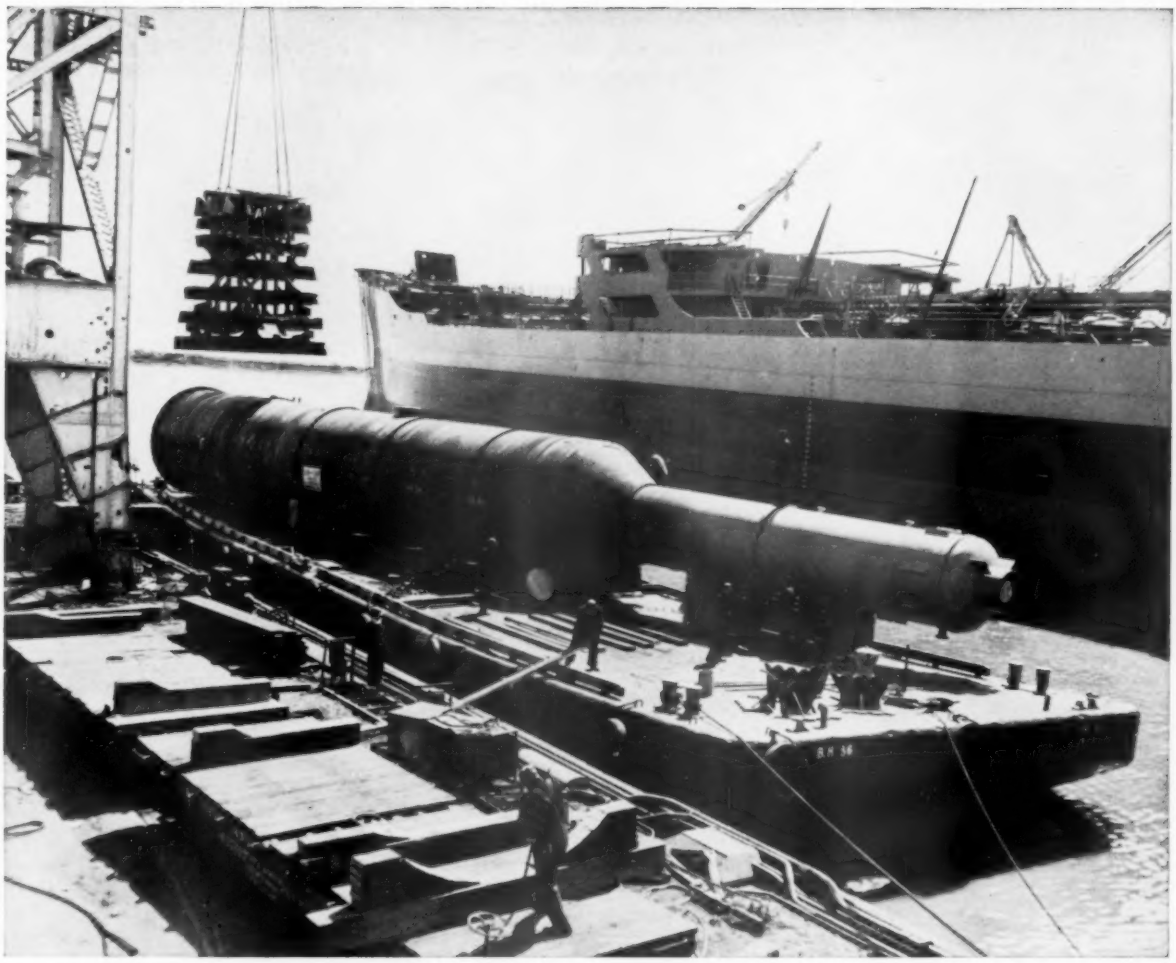
Exploration is somewhat easier in the Powder River Basin than in other principal mountain ranges to the west. Reason: The formation beds are relatively undisturbed, unlike the severe deformations found in many of the mountain basins to the west.

The western flank of the basin dips rather steeply, so that the basin proper is a trough, with the deep side to the west and a comparatively mild upslope to the east, terminating in outcrops in the Black Hills area.

Success on the structures of the west side, and stratigraphic accumulations on the east side, therefore, have generated considerable interest in the central portion.

The producing formations on the western side of the basin are at considerable depths toward the basin's center, and so drilling there has not been intensive.

The southwestern corner of the basin is a few miles west of the city of Casper. The western flank follows the Big Horn Mountains into Montana, with the northern end of the basin generally regarded as in the area south and east of Hardin, Big Horn County. The basin is tangent to the west flank of the Williston Basin, and covers a good portion of southeastern Montana. On the east, the Powder River Basin is bounded by the Black Hills Uplift, on the south



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by the Hartville Uplift and the Laramie Range (map).

Despite its major position among oil producing areas in Wyoming, there has been very little success so far in the Montana area of the Powder River Basin.

So little drilling has been done in this area, however, that it can't be written off.

Production was found at Ash Creek, near the Wyoming-Montana border, in 1952, in the Ash Creek sand (Mesaverde). The field was, at the time of discovery, more than 100 mi. from production, and was rated as one of the more important discoveries of the year because it opened stratigraphic possibilities for much of the basin.

George J. Greer, Trustee, and others, drilled a series of more than 25 wells in 1953 and 1954, resulting in the discovery of shallow gas production in the Pumpkin Creek area, northwest of Broadus, Mont.

This was the first production of note in the Montana portion of the basin, excepting a small part of the Ash Creek field, and some marginal discoveries northwest of it.

Ryan Oil Co. recently recovered oil on drillstem test of a wildcat in section 17-6s-53e, Powder River County. Oil was recovered from the Muddy sand, but the formation produced too much water to allow a commercial completion.

The show, nevertheless, is regarded as significant in view of recent developments to the south, in Wyoming.

Large leaseholds, by both major and independent companies, exist in Montana as well as in Wyoming. Productive horizons are known to exist through the Montana portion, and such shows as have been found are geologically encouraging.

Mesaverde interest in the central portion of the basin was sparked largely by two marginal discoveries made early in 1955.

At Barber Creek, Tennessee Gas Transmission Co. No. 1 Cole, section 23-50n-76w, Campbell County, was completed for 35 b/d from the Parkman. Shows were found in a substantial section of Parkman in this test, but the gauge at completion ranks it only as a noncommercial discovery.

In the Twenty Mile Creek area of Converse County, Anschutz Drilling Co. No. 1 Government, section 24-35n-68w, was completed for 70 b/d, also from the Parkman.

Nearly 100 mi. separates these two early discoveries. Drilling density between them is low, giving some idea of the area still to be covered.

The two discoveries have encouraged other companies, however, to begin exploration in a wide area.

Shell Oil Co., for example, embarked on a considerable program centered roughly at the northwestern end of the northwest-southeast axis joining the two small discoveries.

This operator has completed eight exploratory failures along this trend, and is still active. Davis Oil, a Denver independent, Falcon Seasboard, Gulf, Carter, and several others have been, or are now, active in the area.

It wasn't until July of this year, however, that the first major Parkman discovery was made in the central basin area.

The discovery was made by Farmers Union Central Exchange No. 1 Ferguson-Government, at Dead Horse Creek, section 13-49n-76w. Production on pump was 329 b/d through perforation at 6,968-7,088 ft. The well is 6 mi. south of the Tennessee Gas discovery at Barber Creek.

Shell, with offset acreage to Farmers Union's Dead Horse Creek discovery, added development drilling to its central basin activity and completed an offset for 291 b/d.

This offset dispelled some of the doubts about the commercial value of the Parkman. Farmers Union also has completed a successful offset. Five other locations are now active in the field.

A mile and a half southeast of Dead Horse Creek, The California Co. is now completing No. 1 Government-Davis, section 30-49n-75w. The company swabbed 102 bbl. of oil in 8½-hour test of the Parkman, for the newest Mesaverde discovery in the basin. The company is now installing pump.

The discovery is not separated from Dead Horse Creek by any failures. This has prompted one geologist, with a company that hasn't yet found Mesaverde production in the basin, to say: "We may have a Mesaverde oil patch that's worthwhile yet."

Only further drilling can determine whether Dead Horse Creek will expand to encompass the discovery made by The California Co. And further drilling, from all indications, won't be long coming.

The fact that acreage is available in the central basin area, and that Mesaverde production is not at forbidding depths, opens the play to smaller independents.

D. & D. Drilling currently is testing No. 1 Leiter, section 21-52n-77w, north and west of the Dead Horse Creek field. The wildcat is 9 mi. from any previous drilling.

Location for another wildcat that will be closely watched was made only a few weeks ago by Lion Oil Co. Its No. 1 Wildhorse, section 25-53n-79w, is 10 mi. northwest of the D. D. wildcat.

The Lion test is 12½ mi. southwest of a location for an 11,000 ft. test of the Minnelusa (Pennsylvanian) to be drilled by Trigood Oil Co. But this deep test is another facet of the new activity in the basin.

Discovery early this year of the deeper (Pennsylvanian) production in the Donkey Creek field, on the east flank of the basin, has given an extra push to basin activity.

True Oil Co. No. 6-B Burrows, section 8-49n-68w, was completed in the Minnelusa for 28 bbl. of oil per hour. The discovery followed a development program to the Dakota (Cretaceous) in the field. The Dakota discoveries lay in a northwestward line, more or less, from the Clareton area fields in Weston County, and were a factor in keeping activity going in the eastern flank when the Clareton program simmered down.

The True Oil discovery was offset successfully, though with considerably more water, by The Texas Co.

Deep production at Donkey Creek has resulted in a proposal for a new pipeline to connect with the Butte pipeline, and other facilities for movement of crude to the south.

There also is talk of twinning 18 Dakota wells in the field as a result of the Minnelusa discovery, but there hasn't been any definite action as yet. Interest in deep exploration, however, has definitely been revived.

The Minnelusa production at Donkey Creek is not the first in the basin. The Minnelusa is an important producing formation at Lance Creek field, in the southeastern part of the basin. The analogous Tensleep is a producing horizon at Salt Creek, on the basin's west side.

The stakes in the Powder River Basin can be high. Salt Creek field, for instance, has produced more than 361-million bbl. from 1907 to date, and is the leading field in the Rockies in terms of total production.

Lance Creek, in Niobrara County, has produced 135-million bbl.

Thus two of the Rockies' four proven major fields—100-million bbl. or more—lie in this one basin. In addition, Big Muddy, at the south end of the basin, has passed the 40-million bbl. mark.

Whether Mesaverde or Pennsylvanian prospects now being tested can offer anything of a similar nature remains to be seen. But it's certain that oil operators won't pass up a province of such demonstrated capability without a thorough evaluation.

DEPENDABLE POWER

Beck Oil Company's rig No. 2 now operating on the Texas Gulf Coast. These are the 6-110 GM Diesel Twins that provide the punch for the Beck rig drawworks.

On Gulf Coast, GM Diesel Engines "Get With It!"

The Beck Oil Company is noted for its efficient drilling and production operations. Beck operates three rigs. The company this year will drill about 55 wells. That's a prodigious schedule . . . and that schedule will be realized with STEWART & STEVENSON SERVICES GM DIESEL POWER.

"We drill right, but fast," Lee Beck, partner in the Beck Oil Company says. "Take a look at our boys coming out of, or going back in the hole. They really get with it. GM Diesel Engines have proven their ability to perform excellently.

"Our experience has been lots of footage, fast trips and power to spare. We'd rather run an engine at two-thirds power than one at full power. That reserve sometimes makes the difference."

An example of the power Mr. Beck has reference to is on Rig No. 2, operating now in Liberty County, Texas. The drawworks is powered by two 6-110 GM Diesel Twins. That power enables the boys to "get with it."

With Stewart & Stevenson power, dependability is a guarantee.

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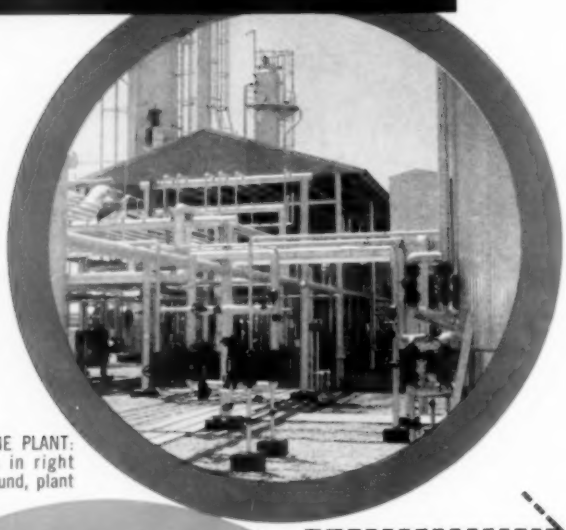
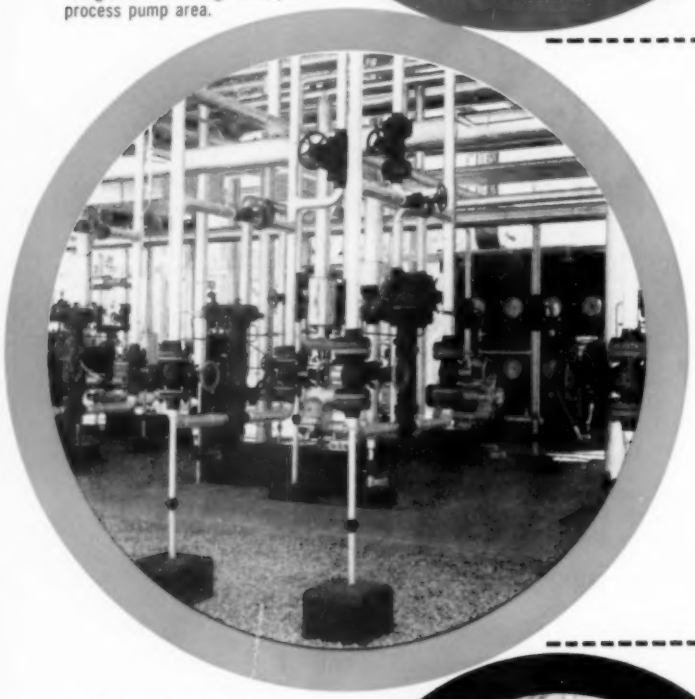
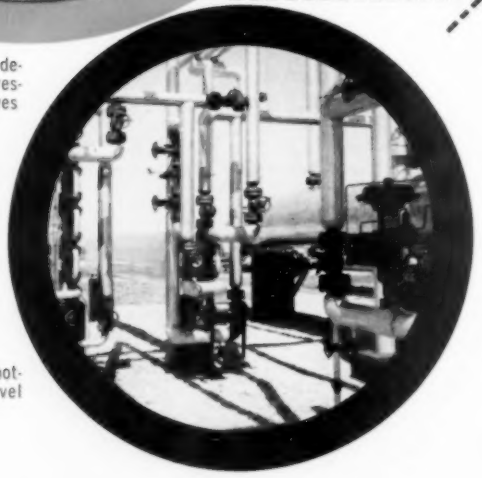


AT A KANSAS GASOLINE PLANT: Propane dehydrators in right foreground. In background, plant process pump area.

because: with orbit's non-lubricated positive closure seating principle... costly maintenance is eliminated



In foreground, depropanizer and debutanizer, reflux accumulator pressure relief and level control valves Reflux pumps in background.



Left to right, de-ethanizer feed, bottoms exchanger, and liquid level control valve.

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Soviets Try Plastic Turbines

The Soviet Union reportedly is using plastic turbines in its new turbodrills.

The report was carried last week by the Austrian Petroleum Press Service. The reference to plastic turbines was contained in a brief report on developments in Soviet turbodrills.

The plastic turbines reportedly cost only one-tenth as much as the usual steel turbines.

According to the news report, the plastic turbines can outperform the usual steel turbines by 8% to 10%.

The report did not give any further details of the plastic turbines, nor indicate how many—if any—are in use now, or where.

The report did add, however, that "the future trend" in the use of turbodrills lies in the use of such plastic turbines.

The Russians still are having trouble developing drill bits that will perform satisfactorily in turbodrilling.

The bit trouble—similar to that found in U.S. tests—results from the high pressures and high speeds of turbodrilling.

The report added that the power of Soviet turbodrills has reached between 300 hp. and 400 hp. at the work face, with drilling speed ranging from 30.4 ft. to 45.6 ft. per hour. The 1955-developed 5-in. turbodrill is now undergoing tests.

A 3¾-in. turbodrill bit also has been developed for structural drilling, to operate at 1,100-1,200 rpm.

The Soviets also report development of several other devices for drilling and geophysical work.

The announcements follow a recent report in which the Russians claimed they are using an electronic integrator to determine the characteristics of oil reservoirs (PW—Sep.13'57,p24).

In the latest report, the "Factory for Geophysical Apparatus & Gear, of Baku" is credited with developing two new devices which use radioactive isotopes.

The first device is a water-seepage meter, which reportedly is used to measure water seepage in a well as to position and quantity. The device consists of a clear-water tank which is lowered into the well. At a predetermined depth, the hole is sealed off, and a glass containing radioactive isotopes is broken. The water carries along gamma-ray radiating particles, which permit surface stations to trace the treated water as to location and amount.

The other device is a cement-density meter, which is designed to provide data on the condition and chemical mixture of cement in oil and gas wells. The cement is mixed with a small amount of radioactive isotopes. The checking device is a ray-recorder that transmits to a surface station the number of isotopic influences at any given depth of the well.

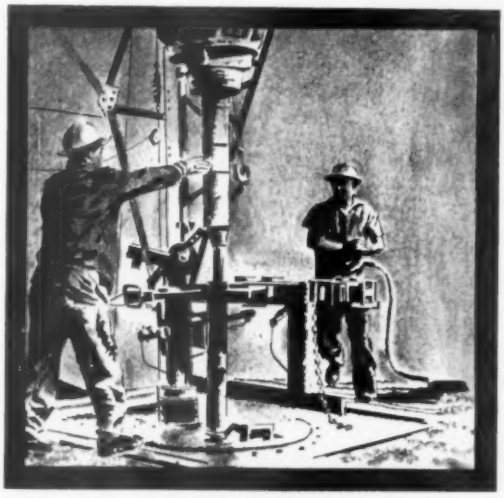
Two other devices reported by the Russians are an electronic thermometer for measuring wells in heavy loam and clay formations, and micro-drilling sets for the drilling of minimum-diameter holes for structural study of oil regions.

Reports state that part of the new equipment has been sold to Red China, Rumania, Bulgaria, Albania, and East Germany.

The Russians also claim a new speed record in Soviet drilling. A well with a total depth of 5,323 ft. is said to have been drilled in 11 days. The Soviet drilling "norm" would have required 34 days to drill the well.

The record-setting well was drilled near Aznakajev, where the Kazan-headquartered oil trust, "Ametjevnjeft," operates.

TWO MILES DOWN—



that's where performance really pays off—and where MD Barite Engineering Service pays its biggest dividends. Whatever the depth, the recommendation of your MD Field Service Engineer can help you log more hole at less cost. He's an expert on drilling problems and drilling mud. His recommendations can mean real savings in casing, prevention of caving and longer tool life. What's more, he can provide you with barite of consistently high quality any time of the day or night from strategically located distribution points.

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Our Trailmobile aluminum pay us extra

"Engineering service sold us on Trailmobile."

Mr. H. D. Miller, President (right), and Mr. R. L. Miller, Vice President and Comptroller, spoke highly of Trailmobile's engineering service.

"Trailmobile has always been willing to come to us to work out specific engineering problems involved in the movement of unusual materials. For example, we recently had a problem with a chemical company who needed to transport a urea solution that required stainless steel, insulated, pressure vessels. Trailmobile engineers sat down with us and our customer and worked out all the details for the required tank. And they delivered in 30 days!"

tank trailers profit...*and protect it too!*

TR-637

In commenting on their new Trailmobile aluminum tank trailers Mr. H. D. Miller, President of Miller Petroleum Transports, Ltd., had this to say:

"We look for three things in tank trailers—maximum legal pay load capacity, low maintenance, and high resistance to leakage. And in these basic essentials of good tank performance Trailmobiles have consistently measured up to our standards."

7½% more pay load capacity! "We find our new Trailmobile aluminum tanks are giving us 7½% extra pay load while staying within legal weight requirements. And this is a significant revenue gain that we can *keep* because Trailmobiles are . . .

Inexpensive to maintain! "Tandem maintenance can be a drain on profits. That's why we favor Trailmobile. It has been our experience that no tandem can match Trailmobile's year-in, year-out trouble-free performance. Our Trailmobiles have also been highly satisfactory in terms of . . .

Resistance to leakage! "I think Trailmobile's extensive testing of aluminum designs prior to putting them on the market is responsible for their resistance to leakage. In fact, we bought Trailmobile's first aluminum tank over two years ago and have had no trouble with it whatsoever. "In our book, this all adds up to extra profit—*that is protected profit.*"

TRAILMOBILE INC.

Cincinnati 9, Ohio • Longview, Texas
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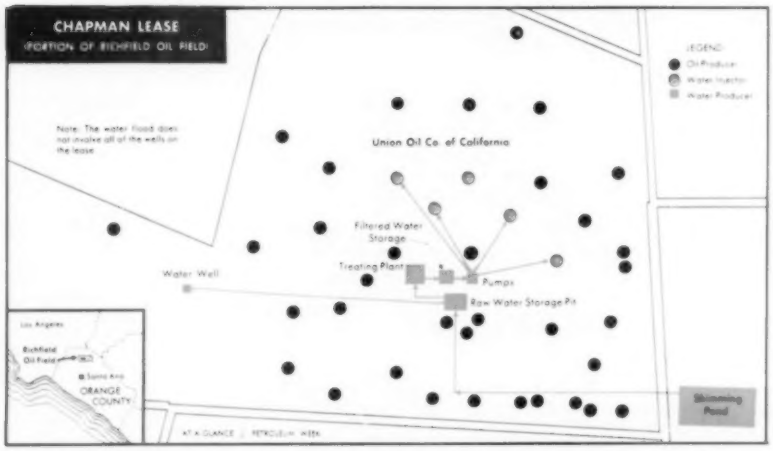
OVER-ALL VIEW of Union Oil Co. of California's Chapman Lease, Richfield field, Orange County, Calif., shows part of the installation for that state's first crestal-type waterflood (PW—Sep.13'57,p26). Water treating facilities are at left in this . . .

Closeup Look at Union's Crestal Flood



DETAIL MAP of the Chapman Lease shows how Union has set up the crestal waterflood. The water well (left) provides 3,000 b/d of the 6,000 b/d used for injection.

The pictures and map (left) give further details of California's first crestal-drive waterflood, announced last week.

Union Oil Co. of California is conducting the program in a part of the Chapman lease, in the 39-year-old Richfield field, where California's first waterflood began 13 years ago.

The field map shows how injection water from a well and from the skimming pond are pumped to the storage pit, from where it is routed to a treating plant to control corrosion and bacteria.

After passing through a pressure-leaf type filter, in which perlite is used as the filtering medium, the water is pumped to the injection wells. The high-pressure pumps can be seen at the right of the picture above.

K. W. BROWN, Union foreman, reads gauges at one of four injection wells being used in the flood.

HARRY D. AGGERS, manager of secondary recovery operations, looks over the 5,000-bbl., gunite-construction storage pit for raw water.

This is a city council meeting in Jefferson City, capital of Missouri. What's going on? Well, Council President Harvey Hager, first on the left, has just received an award for serving his friends and neighbors for 16 years—no, not as a city council member, but as a Standard Oil dealer. Helping him celebrate the award from Standard Oil for his success as an independent businessman are Mayor Arthur W. Ellis, second from left, Councilwoman Gladys Fisher and Councilman Robert E. Dorr.

How 2500 small businessmen won success!

What does it take to be successful in the keenly competitive business world of today?

Well, let 2,500 small, independent businessmen who found success in something they liked and stayed with tell you how they did it. They are all in the same business—all Standard Oil dealers for *15 to 20 years* or more. Since their business is one of the most competitive in the world, they speak with particular authority.

Here is their formula for success, and it applies to many other businesses as well—friendliness, helpfulness and efficient service. PLUS one other vitally important factor—high quality, always dependable products—products they are proud to sell to friends and neighbors.

One other thing. Their friendliness and helpfulness have never been confined to business alone. Of these 2,500 veteran businessmen, hundreds have served as mayors of their towns, as city councilmen, and in Red Cross, Boy Scout, Community Fund or some other community activity.

Just recently we at Standard Oil proudly presented plaques to these 2,500 successful small businessmen throughout mid-America. Now we are looking forward to the time when the 15-year mark will be reached by many more of our 16,000 dealers who are winning success as independent businessmen with their friendliness, efficiency and dependability.

*** What makes a company a good citizen?**

Well, one gauge is a company's contribution to the economic stability of the communities in which it "lives" and "works". Business policies and practices that help other businessmen to grow and prosper are important steps in achieving that goal.

16 years as a Standard Oil dealer. H. E. Frizzell of Billings, Montana, says: "Small, independent businessmen like myself couldn't succeed in the oil business without the aid of a big company. For example, drilling for oil may cost up to a million dollars—and the well may be bone dry. Only big companies can take such risks."

31 years as a Standard Oil dealer. R. H. Salmonson of Ortonville, Minnesota, says: "I couldn't begin to duplicate the equipment that makes up a modern refinery—even on a small scale. Today it takes millions of dollars to refine gasoline. Without a company like Standard Oil behind me, I couldn't be in business for myself."

23 years as a Standard Oil dealer. Ezra Marquie of Kankakee, Illinois, says: "There's more to the oil business than finding oil and selling it. Standard Oil, for example, invests millions annually in research to improve the products I sell and keep me ahead of competition. That's one of the big reasons my business keeps growing."

STANDARD OIL COMPANY (INDIANA)

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SALVAGED boiler and truck were used to build an inexpensive treating unit. This . . .

Portable Treater Cuts Costs

Here's a unique, inexpensive way to cut treating costs: Build a portable oil treater from a junked boiler and a surplus truck, as Arkansas Fuel Oil Corp. did in East Texas.

The handy oil treater was developed to meet the need of treating oil economically on one- and two-well leases held by the firm in the Carthage field, Panola County.

The portable unit cost only $2,500.

The company would have had to spend about $14,000 to build permanent treating systems on each of the eight leases in the Carthage field where treating is necessary.

Oil to be treated is fed to the treater by means of a rotary pump, operated by a power take-off shaft from the truck engine.

The normal rate of flow is approximately 75 bbl. per hour.

The treater fire box is located on the rear end of the boiler. Heat generated here is conveyed by a loop of pipe to the front of the boiler and returned to the rear, where it is conducted up the smokestack.

A thermostat is provided to insure a steady, controlled fire of the proper temperature. Gas from the lease is used as fuel to fire the boiler.

Equipment carried on the truck includes 25 ft. of 1-in. hose for the gas line, and two 50-ft. sections of 2-in. hose for the oil lines.

Arkansas Fuel uses the treater for its leases in the Carthage field, and in the East Texas field, some distance to the west.

The company has ten wells on its eight leases in Carthage. When it becomes necessary to treat a tank of bad oil on an East Texas lease, where the oil usually does not require treating, the truck can be moved easily to the site. No additional manpower is needed, and heavy investment costs are eliminated.

The junked boiler and surplus truck were furnished by the company's own Service Dept. Three switchers are trained to operate the heater.

With Magcobar on your well

less wear and tear on all equipment to save you money

Good mud condition means easier, faster drilling wherever you drill. This increased efficiency shows up in longer bit life, fewer round trips, less stuck pipe. It shows up in an increased penetration rate and in more hole drilled with fewer engine-hours of wear. From the crown block to the bit, a good mud program takes the strain off the equipment, cuts wear and tear.

A planned mud program results in better, safer drilling, and proves itself in more hole drilled for less money. Plan ahead with Magcobar on your next well. Plan to make full use of Magcobar's complete drilling mud service. You will get the best drilling mud materials and chemicals. You will get the mud industry's best trained and qualified engineers. Use the *full* facilities of Magcobar, the industry's leading supplier of drilling mud.

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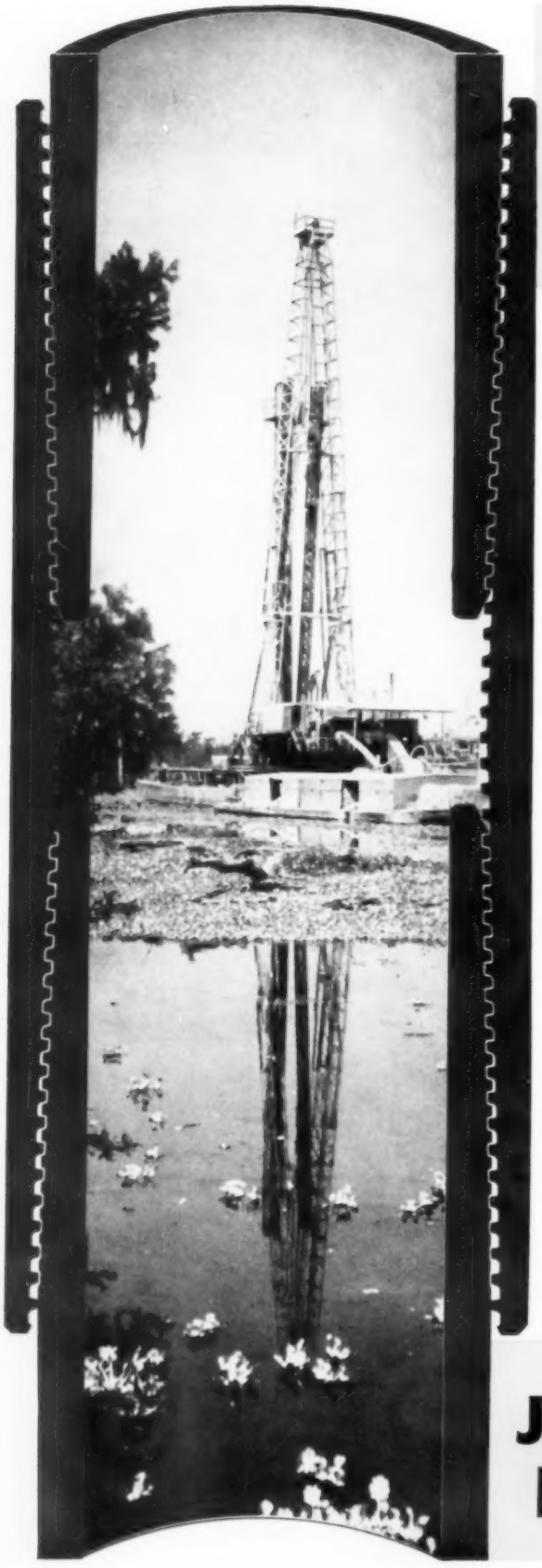

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J&L BUTTRESS-THREAD CASING

J&L Buttress-Thread Casing joint is designed to support great weight.

The long coupling has completely engaged runout threads (five per inch) with ¾" taper per foot and a flank angle of three degrees. The Buttress-Thread, applied to non-upset casing, develops practically the full strength of the body of the pipe.

J&L Buttress-Thread stabs easily and makes up quickly — a time saver.

The product, as in the case of all J&L pipe, is of high quality by reason of mine-through-mill methods and controls of exceptional precision and care.

Available in seamless casing in grades J-55, N-80, P-110 and higher grades.

For further information consult your near-by J&L Supply store, sales office, or resident salesman.

Jones & Laughlin

SUPPLY DIVISION – Tulsa

J&L – A GREAT NAME IN STEEL

(44)

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Seek MER Change For Texas Field

Pan American Petroleum Corp. has proposed that the maximum efficient rate of recovery system for the North Cowden field, Ector County, West Texas, be changed from a reservoir basis to a per-well basis, in a move to encourage gas injection in the field.

The Texas Railroad Commission's present MER for the field is 22,000 b/d, allocated among the wells on a formula of 50% acreage and 50% unit potential. The commission froze the potentials Nov. 1, 1951.

Pan American contends that the system causes a hardship on existing wells, because new wells and reworked wells with a higher potential come in for a new or higher share of the field's total permissible.

Among other proposals, Pan American asked that operators be given credit for all the gas they inject, rather than just for that gas needed to remove penalties in wells with high gas/oil ratios.

•

Lease Sales Reported

Francis M. Raymond, Denver, bid $25.75 per acre for a 160-acre tract in Logan County, to top all bids submitted at the September sale of leases on Colorado state lands.

The offering included more than 44,800 acres. Acceptable bids were received on about one-fourth of the total offering. Average bonus on lands leased was $2.11 per acre.

Pan American Petroleum Corp. leased four tracts in La Plata County, in the southern part of the state.

Sale of leases on 30,286 acres of university and school lands in North Dakota will be held Sept. 25, in Bismarck.

About two-thirds of the offering is in Burke and Mountrail Counties. Other acreage to be offered is in Divide, Hettinger, McKenzie, Morton, and Stark Counties.

•

Mr. Gus No. 1 Salvaged

Salvage operations have been completed on Mr. Gus No. 1, and planning is well under way for utilizing virtually all of the structure and equipment in a mobile drilling barge of improved design.

The lower hull was floated to shore, completing the recovery operation. The mat, which rests on the sea bottom during drilling operations, is being scraped and cleaned.

A minimum amount of patching was necessary.

The biggest single item of loss was the mast, according to C. G. Glasscock Drilling Co., Corpus Christi. The rest of the equipment—both hulls, the draw-works, compound, motors, and pilings—were "in pretty good shape," and most are already back in running order, says C. G. Glasscock, Jr., company vice-president.

"We've got to sort it all out and figure out how to fit it in with a new design," he added. "We plan, tentatively, to increase the size of the lower mat to increase stability, for one thing."

•

Properties Acquired

The Westminster Corp., Denver, has purchased the leases of 12 uranium mining claims in Montrose County, Colo., from Fritz-Erickson Mining Co., Dove Creek, Colo.

The new properties are located in the Slick Rock mining district, at the southern end of the Uravan mineral belt, in an area of heavy uranium mining activity.

Development is under way on three ore horizons that are located on the property.

Transcontinental Oil Co. has acquired the oil holdings of Bankers Life & Casualty Co., Chicago.

Purchase price of $4.2-million covers 113 oil and gas producers in Texas, Oklahoma, Arkansas, Kentucky, Illinois, Colorado, and Wyoming. Also acquired are about 185,000 acres of nonproducing leases in Montezuma County, Colo.

Transcontinental's president, Bernard Fein, says the transaction involves about 6-million bbl. of oil reserves.

McRae Oil & Gas Corp. has added about 600,000 bbl. of reserves to its holdings with the purchase of C. L. Pardo Oil & Gas, Inc.

Consideration was 175,000 shares of McRae common stock. Since the stock

Making Mud Behave

Drilling mud can destroy an ordinary valve. Control of the highly abrasive, pulsating pressure in mud lines was a constant bother until Cameron perfected the Flex-Seal Mud Valve some twenty years ago. This design was an instant success. Today the same valve with certain innovations is saving time and money on almost every drilling rig in the world. New parts interchangeable with the original design make the Flex-Seal rigid during repair and extend its already remarkable resistance to wear.

For durability, ease of repair and all-round economy, especially on remote locations, COUNT ON CAMERON Flex-Seal Mud Valves, the driller's friend for twenty years.

Flex-Seals are manufactured in the United States, England and France.

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Export Office: 7912 Empire State Bldg., New York City. In England: Cameron Iron Works Ltd., Time & Life Bldg., New Bond Street, London W. 1 England

sells today in the neighborhood of $4 a share, this puts a price tag of about $700,000 on the deal.

Most of the new properties are concentrated in the East Texas Old Ocean field.

•

A suit concerning oil and gas rights on 611,000 acres in southeastern British Columbia is being brought against the provincial government by Crows Nest Pass Coal Co.

The company claims the rights were included in a Crown grant received by the company before the turn of the century. Recently, they were leased by the provincial government to Canadian Gulf Oil Co. and Standard Oil Co. of California.

Now Crows Nest wants to move against these companies, claiming trespass.

The case is unusual because of the rate petition of right granted by the government enabling the company to bring suit.

•

Union Oil Co. of California has established temporary headquarters in Anchorage, Alaska, to expedite a joint exploratory program with Ohio Oil Co.

The program is being initiated as a development in the drilling of Richfield Oil Corp.'s No. 1 Swanson River Unit, on the Kenai Peninsula. Union and Ohio jointly own a 10.5% interest in the Kenai test.

•

The U.S. Geological Survey has approved three new units in the Rocky Mountain area.

Amerada Petroleum Corp. will operate the 4,455-acre Scoria unit in Billings County, N. D.

The first test of the block is drilling below 7,765 ft.

Mountain Fuel Supply Co. is operator of the 3,440-acre Antelope Draw Unit, Sublette County, Wyo. The block is northeast of the Big Piney-Tip Top area, on the west side of the Green River Basin.

Forest Oil Corp. is operator of the 17,820-acre Red Canyon unit, Garfield County, Utah. The company is preparing to spud the first test on the block, which is west of Bryce Canyon.

•

Jefferson Lake Sulphur Co. has acquired interest in oil-producing properties and undeveloped acreage in Texas and Louisiana.

The company purchased a half-interest from J. P. Owen, of Dallas, in holdings in Hardin County, East Texas, and in fields in Acadia, Iberville, and Jefferson Parishes, La.

Sale price of $1.8-million also included several additional drilling prospects in which Jefferson Lake will participate, with Owen as operator.

The company has also bought interest in approximately 10,000 acres in six counties in South Texas, from S. H. Howell, of Alice, Tex. Purchase price was over $1-million.

•

An accounting Manual for the Oilwell Drilling Industry will be published in October by the American Assn. of Oilwell Drilling Contractors.

The book is a considerable revision of earlier editions, incorporating such new features as a section devoted to the unit cost method of accounting.

The 200-page manual will sell for $15 ($10 to members), and can be obtained from AAODC, 505 North Ervay, Dallas.

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Drilling Highlights

Saskatchewan—H. K. Riddle No. 16-32 Riddle-Tidewater-Rocanville, Lsd 16-32-15-31-wl, 15 mi. northeast of the Wapella field of southeastern Saskatchewan, flowed 35 b/d of 38-gravity crude from the Bakken member of the lower Mississippian, third such discovery in the province. The other two are near Roncott, 200 mi. southeast, and at Coleville, 350 mi. west.

East Texas—Production from Wilcox (Eocene) sand has been established at its farthest northwest point in East Texas with a completion in Anderson County. The find is H. R. Stroude & Associates No. 1 W. T. Todd, David Clark survey, at the south end of old Boggy Creek Woodbine sand pool.

The well flowed 40 b/d of low-gravity oil from 1,475-85 ft. Nearest Wilcox production is 60 mi. southeast, in Angelina County.

West Central Texas—Fletcher Oil & Gas Drilling Corp. No. 1 Avis Lynch, section 6, block 14, H&TC survey, Haskell County, flowed 264 b/d through 20/64-in. choke from the Burson sand at 4,983-86 ft. The Pennsylvanian discovery is about 2 mi. northeast of the Juliana Strawn field.

North Texas—Standard Oil Co. of Texas No. 7 H. L. Rising, et al, J. B. McAnair survey, A-763, Grayson County, workover project was completed as an Ellenburger gas-distillate discovery for 2,942,000 cu-ft. of gas daily plus 272 b/d of distillate through 14/64-in. choke from perforations at 10,391-464 ft. The venture originally was completed as an oil producer from the Oil Creek sand at 9,585-606 ft. in April, 1954.

Wyoming—Pan American Petroleum Corp. No. 1 UPRR-Anschutz Ranch, east of Elk Mountain, Carbon County, was completed as a Sundance sand discovery for 529 b/d to open up a new area southwest of South Big Medicine Bow field.

North Louisiana—Pan American Petroleum Corp. No. 1 James, section 8-20n-1e, Union Parish, flowed 225 b/d of high-gravity oil through 11/64-in. choke from perforations at 10,355-68 ft. in the Smackover. The discovery is 7 mi. southeast of production in the Ora field.

California—Shell Oil Co. No. 31-35 Breckenridge, section 35-16s-10e, San Benito County, flowed 5-million cu. ft. of gas daily through ½-in. choke from selected intervals through over-all interval at 2,585-710 ft. The gas discovery is 2¼ mi. northeast of the Vallecitos field.

North Dakota—Amerada Petroleum Corp. reports two discoveries, one in Billings County and the other in McKenzie County. The No. 1 Scoria Unit, section 10-139n-101w, in Billings, recovered 5,500 ft. of gas-cut oil, plus 500 ft. of heavily gas-cut, slightly mud-cut oil on drillstem test of the Heath (Mississippian) at 7,964-990 ft. Operator is drilling ahead to the Madison, productive at the Fryburg field, 4 mi. east.

The No. 1 Bears Den Unit, section 25-149n-96w, McKenzie County, swabbed 98 bbl. of salt water in 22 hours from the Nesson (Mississippian) at 9,530-605 ft. The prospect is 2 mi. south of Croff field.

Texas Panhandle—Shell Oil Co. No. 1-B Alamosa Ranch, in League 315, State Capitol Lands survey, Oldham County, flowed 612 b/d through 1-in. choke from the Granite Wash (Pennsylvanian) at 7,122-32 ft. The discovery is 6 mi. southeast of Shell's first discovery, completed in the Missourian, in the Palo Duro Basin.

Alaska—Shell Oil Co. and Humble Oil Co. have started drilling operations at Jute Bay. The test, No. 1 Bear Creek, is near the site of exploratory activity carried out in the 1930s. It is on the west shore of Cook Inlet, near Kanatak.

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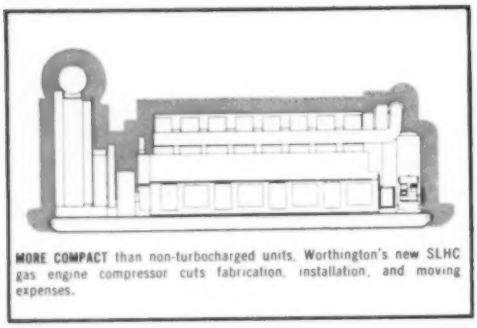
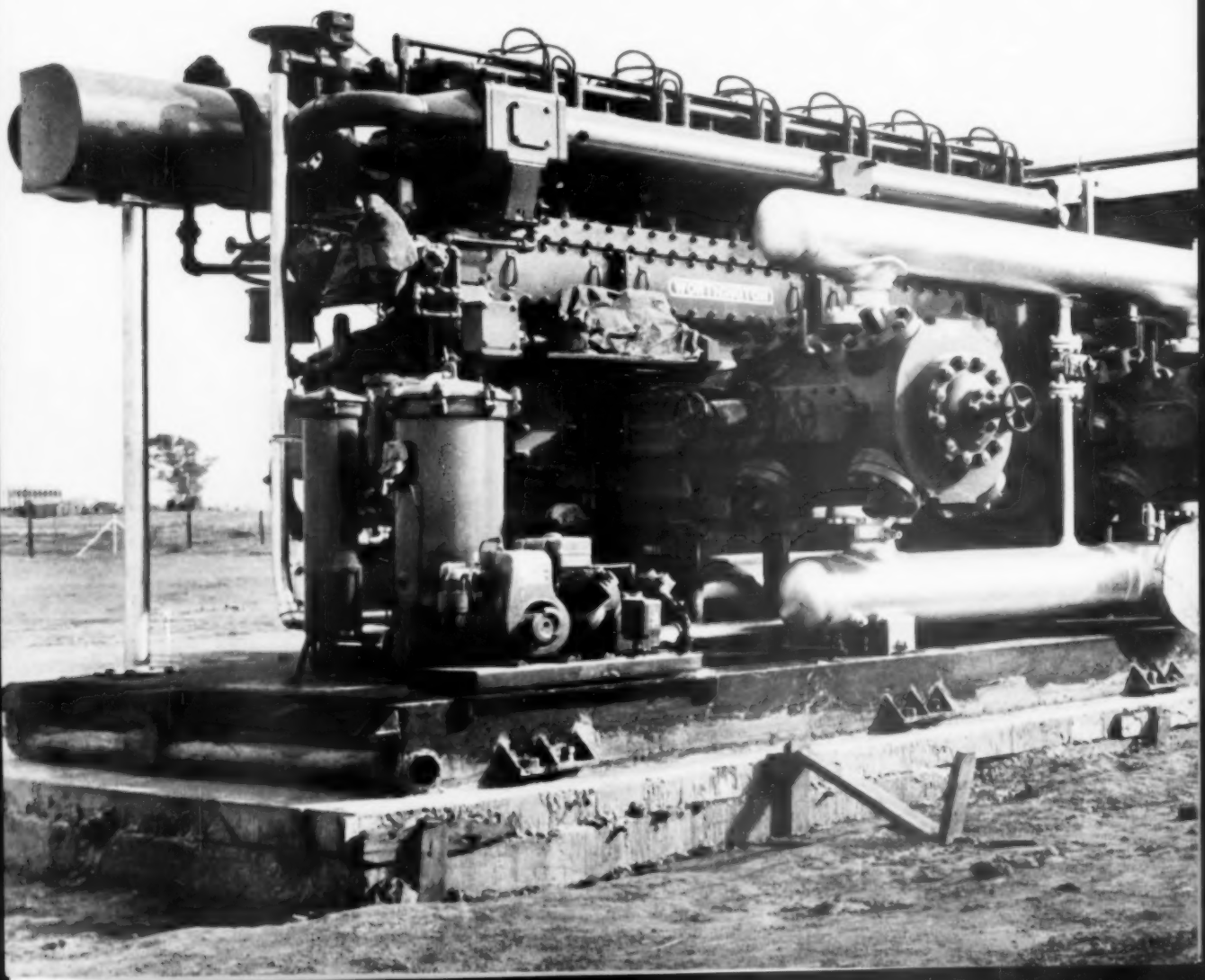


MORE COMPACT than non-turbocharged units, Worthington's new SLHC gas engine compressor cuts fabrication, installation, and moving expenses.

After five years of research, development and testing, Worthington now introduces the all-new SLHC—the only turbocharged gas-engine compressor in the medium horsepower range (330 to 880 hp.).

Turbocharging is the key to the SLHC's ability to slash gas handling costs. Turbocharging makes the new SLHC more compact, more economical, more reliable. Turbocharging gives you big engine performance, big engine economy in the smaller horsepower sizes.

MORE COMPACT—The new SLHC is considerably more compact than naturally aspirated units. Its smaller size cuts the cost of fabrication, installation and moving. Well under the maximum allowable



ENGINE COMPRESSOR

ENGINE ECONOMY IN SMALLER HP SIZES

width, the SLHC can move over most highways without special—and expensive—procedures.

MORE ECONOMICAL—Turbocharging gives the new SLHC the lowest fuel consumption of any engine compressor in its size range. At full load, you get guaranteed fuel consumption of only 7,000 Btu/bhp/hr. Heat rejection to the jacket water and lube oil is as much as 34% less than comparable non-turbocharged units. As a result, a smaller, less expensive radiator is required.

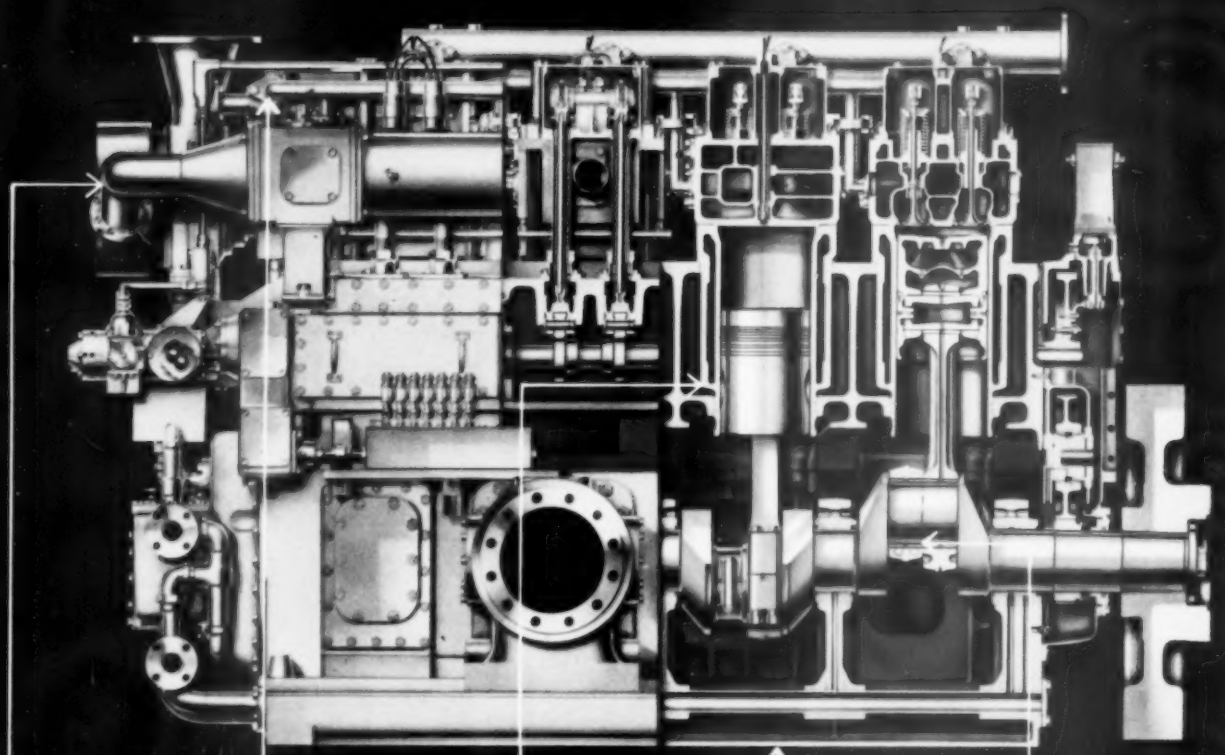
MORE RELIABLE—Its moderate engine speed (450 rpm) and conservative bmep makes the SLHC one of the most reliable four-cycle engines ever produced. It uses a turbocharging system proved by Worthington experience on thousands of engines for all types of application.

Now in quantity production at Worthington's Buffalo Division, the new SLHC gas-engine compressor is supplied in 4, 5, 6, 8, or 10 cylinder in-line units for skid-mounting or permanent installation. For more information mail coupon on next page. Worthington Corporation, Harrison, N. J.

WORTHINGTON

ONE OF THE FIRST INSTALLATIONS of an SLHC engine compressor is this gas gathering station in the Oklahoma Panhandle. This six cylinder unit is pumping gas to one of Northern Natural Gas Company's main line stations.

THESE ADVANCED FEATURES MAKE THE NEW SLHC
5 YEARS AHEAD IN DESIGN



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INTEGRALLY CAST WATER JACKET IN CYLINDER LINER. Water cannot leak into the crankcase. All water connections are external. This unique design is especially suitable for use with high-temperature cooling systems.

HEAVY-DUTY FRAME AND BASE. Massive, one-piece frame and base are of heavy cast iron construction. Symmetrical design of base permits mounting of compressor cylinders on either one or both sides of engine.

SIDE-BY-SIDE CONNECTING RODS give lowest bearing loading—most rugged and reliable design. Pistons are fitted with full-floating wristpins.

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On-the-job instruction of junior engineers is core of Dowell Inc.'s companywide training effort. **Goal:** expansion with skilled manpower.

Training Keeps Good Team in Field

How can you make sure that the tough jobs in the oil fields are handled right? The best way, says Dowell Inc., of Tulsa, is this: Recruit only quality men, show them how to advance, and then train them hard.

The system is working well for Dowell, whose expansion in oil well acidization and formation fracturing has made it one of the largest service companies in the industry. Dowell now has 2,500 employees, scattered through more than 165 offices and field stations in the U.S., Canada, and Venezuela.

Every one of the 2,500 has been trained on the job. Part of the benefit shows up in the company's personnel-turnover rate. In recent years it has been sliced in half—to 12%.

Greatest attention in training is on the junior engineers. They are the link between nonsupervisory workers and various echelons of management, and are the pool from which men are drawn to fill higher jobs. Since 1949, about 500 of these young engineers have graduated to more responsible positions.

Last month Dowell completed an overhaul of its technical training materials, to make sure instruction of engineers is complete and current. Reason for this emphasis:

Like any other oil field firm, Dowell realizes that the gain or loss of millions of dollars is in the hands of the supervisor at the well. Capable manpower is at a high premium for a company that may have $500,000 in specially designed equipment at a single location. Great potential loss constantly hangs over the use of hazardous materials, and equipment in hazardous areas. The future production of a customer's well—and literally the service company's own business success—often depend on a lone field engineer, and how he performs on the job.

To hire only good men, the com-

pany places heavy stress on scientific interviewing and testing—both of which are mandatory for workers, as well as engineers. Dowell sends its employment manager, Dr. J. B. Stone, to 30 or 40 colleges over the country, and to technical society meetings.

All candidates for engineer jobs are given what the company calls the "temperamental" test. This has some 300 questions, designed to find out if a man has self-control, ability to get along with others, administrative talent, and other desirable qualities.

Dowell's field station managers give special care to interviewing and testing the nonsupervisory applicants. Reason is that most of the company's service engineers and field managers come up from the ranks.

Explains J. C. McCormick, personnel-training manager: "We will not hire the floater type. In the first screening, the oral interview, the station manager uses patterned questions to weed out the undesirables.

"If our manager is a good interviewer, he doesn't have to ask too many questions, or do much talking. Most applicants will talk freely because they are anxious to land the job. Usually the manager can soon find out if the man is shiftless."

Applicants who pass the station manager's interview are given a written I.Q. test. And if the manager thinks they show unusual promise, they get the more detailed psychological tests normally reserved for the engineering candidates.

Men who have passed all required tests are offered open jobs in the categories to which they seem best fitted.

From the time they join the company, Dowell men can see the ladder of advancement clearly—with rungs rising from "utility man" all the way to top management. "Every employee," says employment manager Stone, "knows he has equal opportunity to climb to a managerial position. We check the progress of newer men every three months, to assure prompt promotion if it is justified."

It is to help men climb the ladder, as well as to insure quality work, that Dowell insists on a basic course in service operations for all field men. The course is given to both supervisors and workers; it covers indoctrination, truck driving, loading, and operation of equipment.

Everyone in the company, whether in operations, in the laboratories, or in general office work, must take part in some company training program.

The junior engineers are required to intensify their training with 11 outside "lessons." It is the printed materials for these that the company brought up to date last month, incorporating the latest field techniques.

The engineers are given one month to bone up on each of the lessons, which cover such subjects as company history, safety, supervision, oil geology and economics, well acidizing and cementing, formation fracturing, report-writing, and salesmanship.

To give the junior engineers a running start, and to fit them into the right job slot, Dowell has started a "pre-assignment" school. This is a month-long "crash" study program, in which 40 Dowell experts in all fields serve as instructors. The new engineers are shown the company's service operations and current operating procedures. They get on-the-spot training in the latest techniques in well-problem analysis.

The pre-assignment schools allow Dowell executives to observe the engineers, and to place them in the jobs for which they seem best suited.

The first such school was held in Tulsa this summer. Others will be held later, as a continuing part of the overall engineer training program.

Management is convinced that a tough training grind builds morale. Before the engineer training was expanded and streamlined in recent years, Dowell found that engineers were "switching" jobs after about 14 months, on the average.

Now, says Dr. Stone, the combination of training and careful screening has practically eliminated turnover as a problem. He observes, "A certain amount of turnover is necessary—even healthy—for an organization, since it introduces new blood and new ideas. But now we have it under control."

What's New / IN MANAGEMENT

College Teaching Hit

Oil companies will not continue heavy donations to colleges unless graduates meet the industry's standards, warns a Shell Oil Co. vice-president who feels college training is deficient.

Addressing the Mathematical Congress (of university teachers) in Banff, Alta., this month, Paul L. Kartzke, of Calgary, said flatly: "we will pay the price for your product as long as we can profitably use it. But if you do not produce what we want, then, despite the fact that you have a monopoly on production, we will find a substitute for it."

Kartzke reviewed the large sums being spent by oil companies for scholarships, fellowships, and research grants-in-aid—including Shell's own $500,000 contributed each year to North American Universities.

Then he added that, among other draw-backs, some present graduates cannot do simple statistical work, and many "have a narrowness of vision caused by concentration of study in their own particular fields."

Kartzke also observed that the majority of graduates today know the "how," but not the "why"—while the industry needs, more than anything, men "who can solve problems they have never seen before."

Kartzke's conclusion: College teachers today are "not requiring students to undertake the mental discipline that was required in the past."

•

New evidence that oil executives don't exchange health for business success came from Esso Standard last week. The company's medical director, Dr. Leo Wade, announced the results of a medical survey of 176 Esso management personnel and the same number of nonmanagement people. Highlight results:

- Only seven of the executives had ulcers, compared to ten in the nonmanagerial group.
- Evidence of circulatory disorders was shown by 32 of the executives and 33 in the other group.
- The same number in each group—32—showed evidence of high blood pressure.

Concludes Wade, "There is no evidence to suggest that management personnel are any less healthy than other workers."

Wade believes, however, that a new kind of research is needed to pinpoint the factors that may influence health in the office environment.

He says it is hard to determine occupational hazards for people who work in well-lighted and well-ventilated offices, and "who come in contact with nothing more toxic than paper, and may rarely lift anything heavier than a briefcase."

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MINIMUM STORAGE—The small concentrations required eliminate need for expensive additive storage.

EXTRA BENEFITS—Rust protection it provides lengthens life of distribution and storage facilities from refinery to customer.

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—M. J. Rathbone, President, Standard Oil Company (New Jersey)

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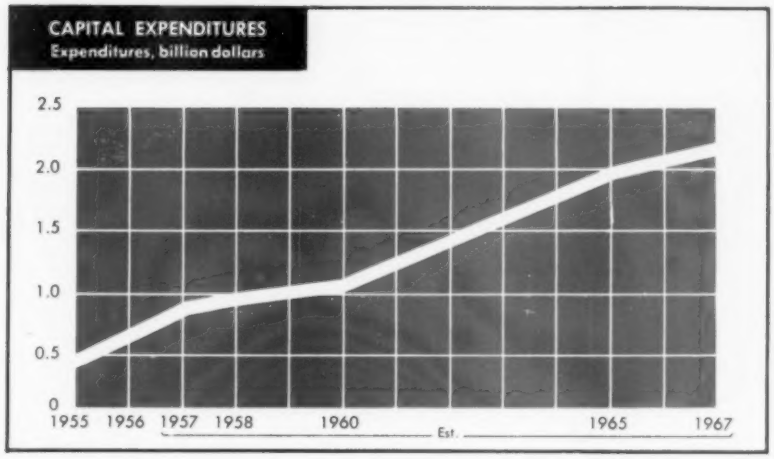
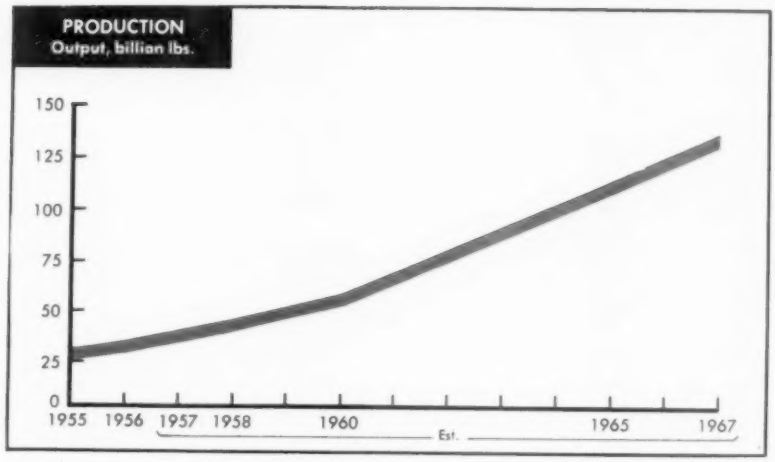
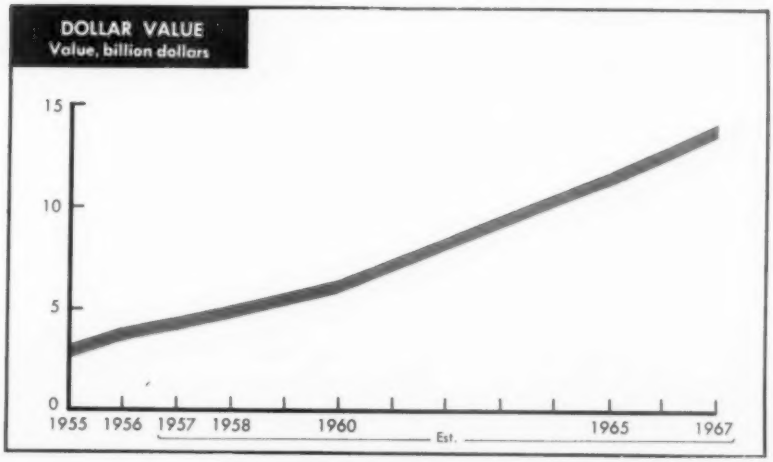






Capital expenditures, production, and dollar value of U.S. and Canadian petrochemicals are up considerably again in 1957—and are going higher even faster in the years ahead (charts).

These are the conclusions of this year's survey of the petrochemical industry made annually by Petroleum Processing, a McGraw-Hill publication.

The 1956-57 production estimates in the survey are based on studies made by Dr. R. L. Bateman, director of product development of Carbide & Carbon Chemical Co. Petrochemical industry predictions beyond this period were supplied by Henry G. McGrath, associate manager of new business development for M. W. Kellogg Co.

Petrochemical output in 1957 is expected to rise 6.4% over last year —which is, however, substantially less than last year's 11.8% increase over 1955.

Inorganics replace aromatics this year as the fastest growing segment, with a 9.6% of increase from 1956 to 1957. The gain will bring production of inorganics up to 10.7-billion lb.

Aromatics, which contribute the smallest volume to petrochemical production (4-billion lb.), will gain about 8% over 1956.

But aliphatics, which contribute the largest volume, are estimated to show only a 4.6% gain (to 23.5-billion lb.), thus bringing down the over-all petrochemical production gain to 6.4%.

The slower growth this year is partly a result of consolidation of expansion in recent years. Rolling readjustments in allied industries, such as rubber, also contributed.

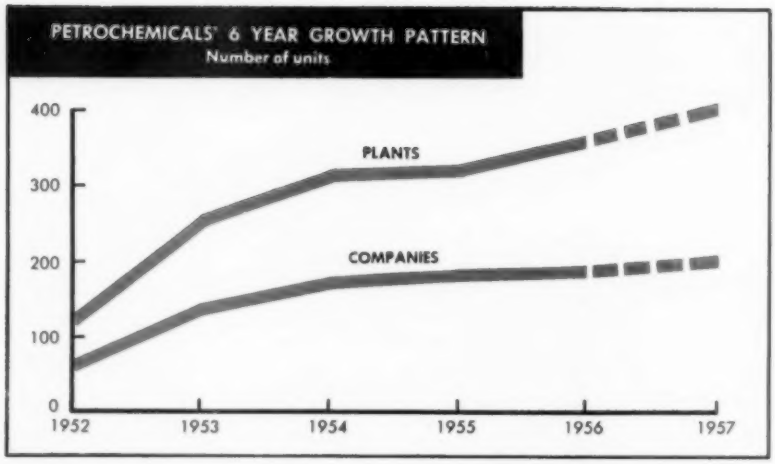
The value of petrochemical output, $4.5-billion, represents a 5.6% gain over 1956—again lower than the gain registered a year ago. The value of total petrochemical output in 1957 is estimated at $4.5-billion.

But boosts in production and uses of polyethylene, polyurethane foams, and synthetic rubber could push over-all petrochemical manufacturing to new growth peaks in the years ahead.

McGrath's estimates for the next ten years take on boom proportions:

He expects yearly petrochemical production to reach 60-billion lb. by 1960; 115-billion lb. by 1965; and 137-billion lb. by 1967.

Value of petrochemical output, he says, will probably hit $6.4-billion by



1960; $11.8-billion by 1965; and $14-billion by 1967.

Capital investment in petrochemicals will advance accordingly. Now about equal with capital investment in petroleum refining, it is expected to far outstrip the latter by 1967 (chart, page 41).

At present, petrochemical capital investment for new plants and equipment is nearly $1-billion a year. By 1960, says McGrath, it should reach $1.1-billion; by 1965 $2-billion; and by 1967 $2.7-billion. (Expenditures in petroleum refining are expected to be about $1.3-billion in 1967.)

The foundations for such growth were laid during the past years; a threefold increase took place in the U.S.-Canadian petrochemical industry from 1952 to 1957 (chart, above).

The number of companies active in petrochemicals has grown from 70 in 1952 to 206 this year. In terms of number of plants—operating, building, or planned—the jump has been from 130 to 409.

I. Polyethylene for Plastics

The continuing demand growth and technological progress in plastics production makes for considerable growth potential for both rigid and "conventional" polyethylene.

Polyethylenes have, in recent years, found many new uses, especially in the packaging field. Some are new—in fields where no packaging was used before.

Dr. George Walsh, of Phillips Chemical Co., summarizes the polyethylene picture this way:

"Conventional polyethylene, with well-established and expanding markets, is predicted to show a gain in domestic productive capacity from the present 600-million lb. per year to 800-million lb. per year by 1960. Demand may lag slightly during some of that period, but it is expected to equal supply by early 1960.

"Rigid polyethylenes [which are being produced mainly in plants put on stream during 1957] have presently completed domestic facilities of about 125-million lb. per year, with a capacity growth to 450-million lb. per year expected by 1960 . . ."

Booming ethylene continues to top previous estimates. It now appears that in 1961, 21 ethylene plants will be delivering 54-billion lb. That's the combined opinion of Dr. R. F. McCleary and John J. Glover, of Jefferson Chemical Co.

McCleary and Glover point out that, since most of the best feedstock for ethylene—refinery off-gases—is already committed to ethylene production, additional output will have to come from other hydrocarbons, principally propane and butane.

Other trends to watch for concerning ethylene:

More large-plant production, with pipeline delivery to customers. Such sales reached 594-million lb. in 1956.

More production of high-purity ethylene, for polyethylene and for direct oxidation to ethylene oxide.

Ethylene oxide, clearly the largest consumer of ethylene, should hold this position for a few years.

Two new ethylene-oxide producers are entering the field with the direct oxidation process.

II. Synthetic Rubber

Synthetic rubber capacity has outstripped consumption, and a temporary lull in production is taking hold. But new uses for rubber will soon bring demand and supply into line, according to Dr. John T. Cox, Jr., partner in the consulting engineering firm of Cox & Weinrich.

Consumption of synthetic and natural new rubber in the U.S. was 1.5-million long tons in 1957, a 4% increase over 1956. The outlook for 1958 is for a smaller increase over 1957.

The present surplus capacity was brought on by heavy expansion in 1955, after the government sold its plants to industry. It should be no cause for concern, however. Synthetic will have to supply the difference between increasing world rubber consumption and relatively fixed natural rubber production.

Also, because many rubber manufacturers are also rubber fabricators, they will try to boost use of synthetic rather than cut back production and have idle capacity on their hands.

Butadiene capacity at the end of the year will be more than enough to satisfy the needs of its major market—as a feed for synthetic rubber plants. But new applications already appear likely.

Special uses for butadiene, as in dibasic acids (nylons, for instance, in one product), are expected to grow, and to stimulate an increased butadiene production capacity. That's how D. E. Norris, of Houdry Process Corp., figures it. He looks for such specialty applications to cause a gradual increase in butadiene capacity from its present 1-million tons a year.

Norris points out that new butane dehydrogenation units make butadiene production more profitable by producing butadiene and butylenes simultaneously (PW—Apr.26'57,p65).

III. Urethane Foams Up

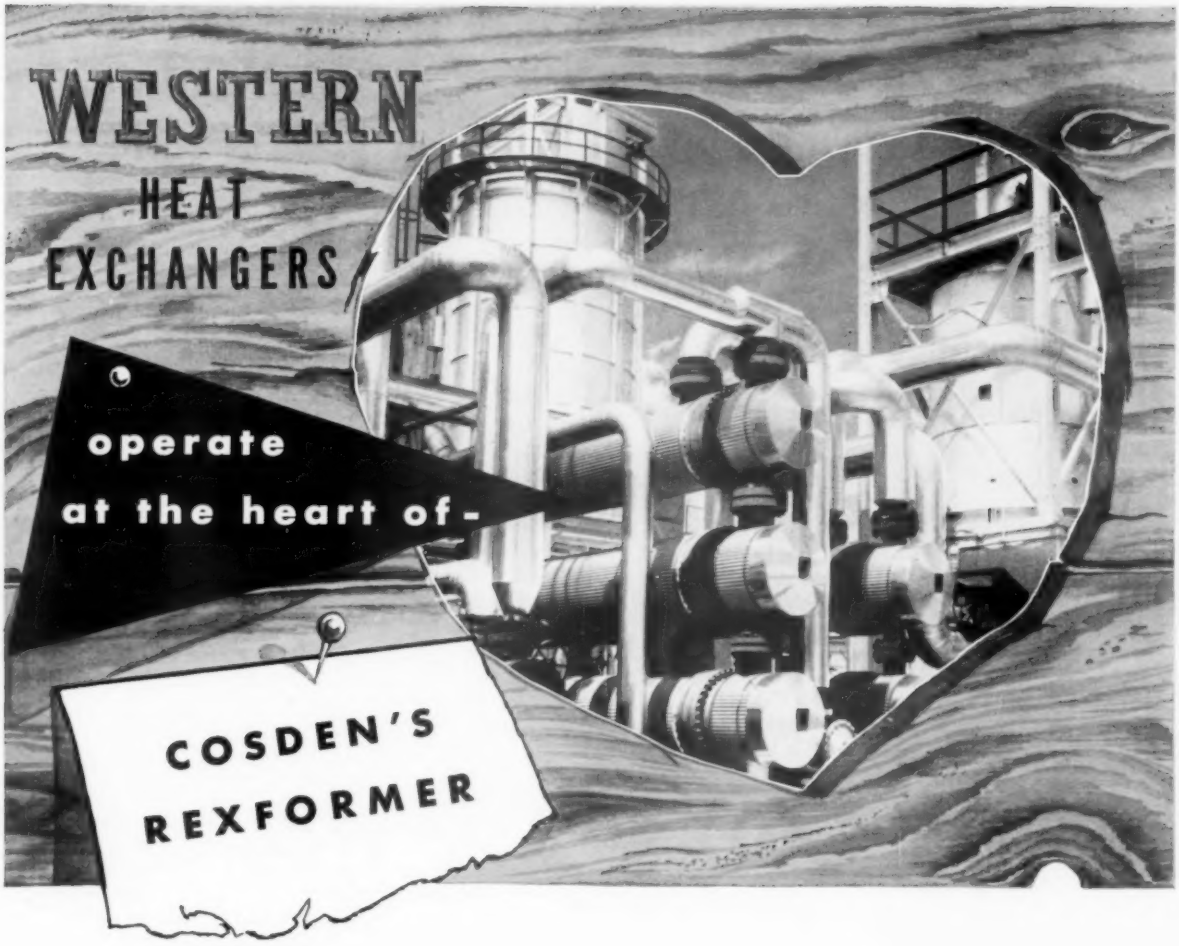
Output of urethane foam in 1957 will be about 25-million lb., with an estimated rise to 100-million lb. within the next three years.

For the long run, it is believed that they will find important usage as low-temperature insulation materials and as structural materials, particularly in "sandwich-type" construction panels. Resilient urethane foams will capture some of the latex foam market. In addition, there is also a large potential in uses where latex is not suitable. (Resilient foam consumption is expected to increase 50-100% in the next five years.)

IV. Other Petrochemicals

U.S. production of recovered sulfur, now estimated at 500,000 long tons a year, may well double by 1962. That's what Sam S. Emison, vice-president of Stauffer Chemical Co., feels.

Sulfur recovered from natural or refinery gases (petrosulfur) will increase



The accurate ratings, careful design and skillful fabrication of the Western Heat Exchangers installed in the UOP Rexformer at Cosden Petroleum Corporation's Big Spring, Texas plant are characteristic of Western heat transfer equipment found today in many of the nation's leading petroleum, petro-chemical and chemical process units. The Cosden plant is producing automotive gasolines of the highest octane ratings.

The efficiency and economy rigidly practiced in the design, fabrication and service of Western heat exchangers are responsible for the increasing number of satisfied customers throughout industry.

Let Western aid in your current heat transfer requirements.

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significantly, because of the growing production and processing of sour crudes. The refineries and gas plants that are handling these additional sour feedstocks are still expected to turn out odorless products with improved color.

Also, sulfur poisoning of very expensive reforming catalyst is to be avoided at all costs.

The outlook is good for expanding use of the primary aromatics, benzene, toluene, and xylenes—especially to boost gasoline octane rating.

Harold Edward Bramston-Cook, vice-president of Oronite Chemical Co., points out that 1965 estimated demand for premium gasoline—1.5-million b/d—will mean a correspondingly high demand for high-octane components, and the BTX chemicals are among the highest-octane components available. BTX supply, mainly from cat reformers, will have difficulty keeping up with demand if octane ratings continue to rise.

The outlook for continued and expanding chemical use of these aromatics is also good. But it hinges largely on whether a significant supply remains after their octane-improvement function is fulfilled.

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This variable-speed reading technique, pioneered by Petroleum Week, is especially designed for busy oil men like you—to give you all the information you want and need in the shortest possible time.

Electric Power Seen Gaining

Electric motors are taking over an increasing proportion of the "muscle work" in petroleum refineries, according to information presented at the American Institute of Electrical Engineers' petroleum industry conference last week.

The "muscle work," according to Lee B. Eddy, of Universal Oil Products Co., is the driving of pumps, compressors, and other rotating machines in refineries.

Eddy carries his prediction a step further:

"As the electric generating capacity and distribution-system reliability of our country increase, it is to be expected that electric motors will take over an even larger portion [than they have now] of the muscle work in refineries."

Some reasons for the growing popularity of electrical power systems: their comparatively low initial and maintenance costs, and the critical need for a continuous and dependable power supply.

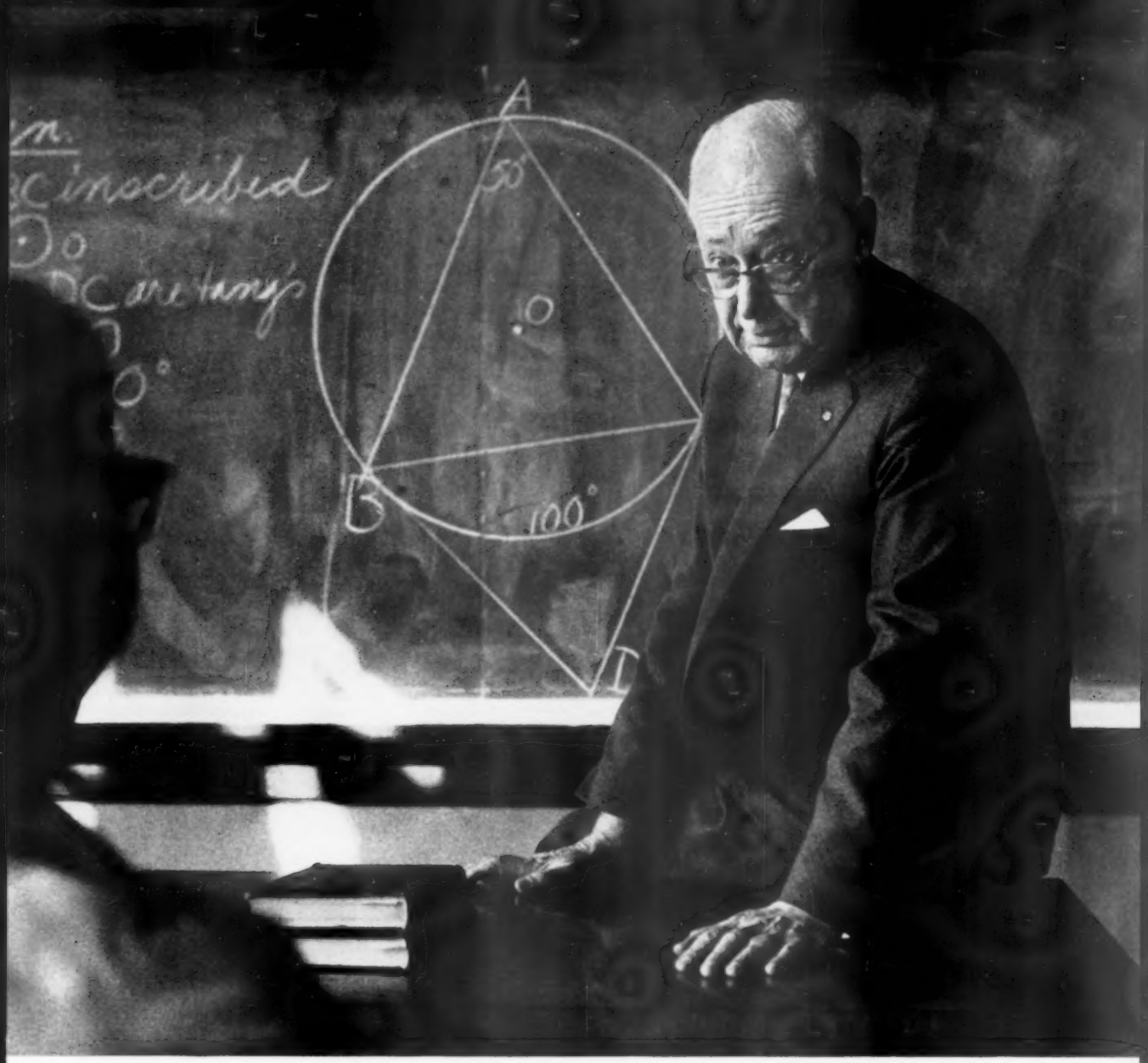
Eddy points out that the installed cost of a motor with its complete electrical supply system is less for all horsepower ratings than the cost of a turbine with its complete steam supply system, when the turbine exhausts to the atmosphere.

The high cost of the steam-system boiler plant accounts for most of the difference.

On maintenance costs, again, the steam boiler can make the difference, according to Eddy, because both electric motors and steam turbines require little maintenance work. But, Eddy points out, "The maintenance cost of a steam boiler plant . . . is definitely higher than for an electrical distribution system."

Continuous, dependable power was the reason cited by an oil man at the conference for his strong preference for the electrical system. J. M. Bryan, of Humble Oil & Refining Co., told the conference that "the lifeblood of a modern petrochemical plant is its electrical system . . . In the highly complex processes, involving extreme temperatures and pressures, tremendous outputs, and precise interlocking of functions, the power supply must be as continuous and dependable as economically possible."

Nevertheless, there is no cover-all formula for choosing between an electric power system and its chief competitor for providing refinery "muscle"—the steam turbine. How-

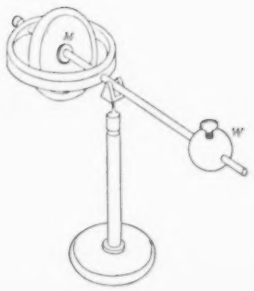


A Teacher affects eternity... he can never tell where his influence stops

. . . wrote historian Henry Brooks Adams—a truth that today demands universal recognition. America is losing to industry many of those best able to inspire and mold youthful minds—the dedicated teachers of high school subjects prerequisite to engineering training.

The value of a teacher's influence in a boy's selection of a career cannot be over-estimated, yet all too often the rewards of teaching are more spiritual than material. Compensation fitting the importance of their work can help keep teachers in their classrooms, where they prefer to be.

America gains every time teaching is chosen as a career. It also gains whenever a teacher finds it possible to remain in the profession.



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ever, Eddy feels that the following rules can help individual refiners in making a choice:

Where electric power is dependable and of reasonable cost, sufficient non-condensing turbines should be installed to provide all the low-pressure steam requirements; all other small drivers should be electric motors; large drivers—either motors or condensing turbines—should be selected on the basis of detailed economic study.

Refiners are also leaning toward substitution of far-more-expensive corrosion-resistant materials instead of the customary electric components throughout electrical systems used in the refinery.

Stainless steel alloys, which now show promise of replacing galvanized steel in some refinery equipment, often cost up to eight times as much as galvanized steel. Bronze alloys can run as high as four or five times as expensive as galvanized steel.

Among the reasons Humble's Bryan offers for justifying the use of the higher-priced materials: the life expectancy of the completed installations; the need for continuous service; routine maintenance during useful life; and final salvage value of the materials.

What's New / IN REFINING

A new desk-sized, transistorized electronic computer can control "major production operations in the process industries," according to its maker, Ramo-Wooldridge Corp.

The computer, known as the RW-300, was introduced at the recent instrument-automation conference and exhibit of the Instrument Society of America.

The computer reportedly reads process instruments automatically; performs necessary computations to relate readings to process objectives; determines control actions that will result in optimum plant operation; and activates process mechanisms or adjusts set points on supervised control loops.

•

Standard Oil Co. (Ohio) has begun construction of a 3,570 b/d sulfuric alkylation plant at its Cleveland Number 1 refinery.

The $3.8-million unit will be completed by May, 1958. It is the last in a series of new units and equipment recently added to modernize the Cleveland plant, which has been in continuous operation since 1870.

Arthur G. McKee & Co. is building the unit under license from Esso research & Engineering Co.

•

Shell Petroleum, Ltd., and its affiliate, Showa Oil, Ltd., will each buy a 25% interest in a new Japanese petrochemical plant to be built by Mitsubishi Yuka. In turn, Mitsubishi is buying a 25% interest in the 40,000 b/d refinery now being built by Showa.

Mitsubishi plans to produce 10,000 tons of polyethylene a year, and 18,000 tons of styrene monomer. It will get raw materials from the Showa plant.

•

The Latonia (Ky.) refinery of Standard Oil Co. (Ohio) will be operated primarily as an asphalt plant.

The plant, which has a crude capacity of 16,000 b/d, has been making about 2,500 b/d of motor gasoline, 2,000 b/d of jet fuels, 3,500 b/d of heating oils, 1,500 b/d of fuel oils, and 3,000 b/d of asphalt.

Elliott B. McConnell, Sohio's vice-president of manufacturing, says that the decision to convert to asphalt is "based on the growing asphalt market, including the national road-building program."

•

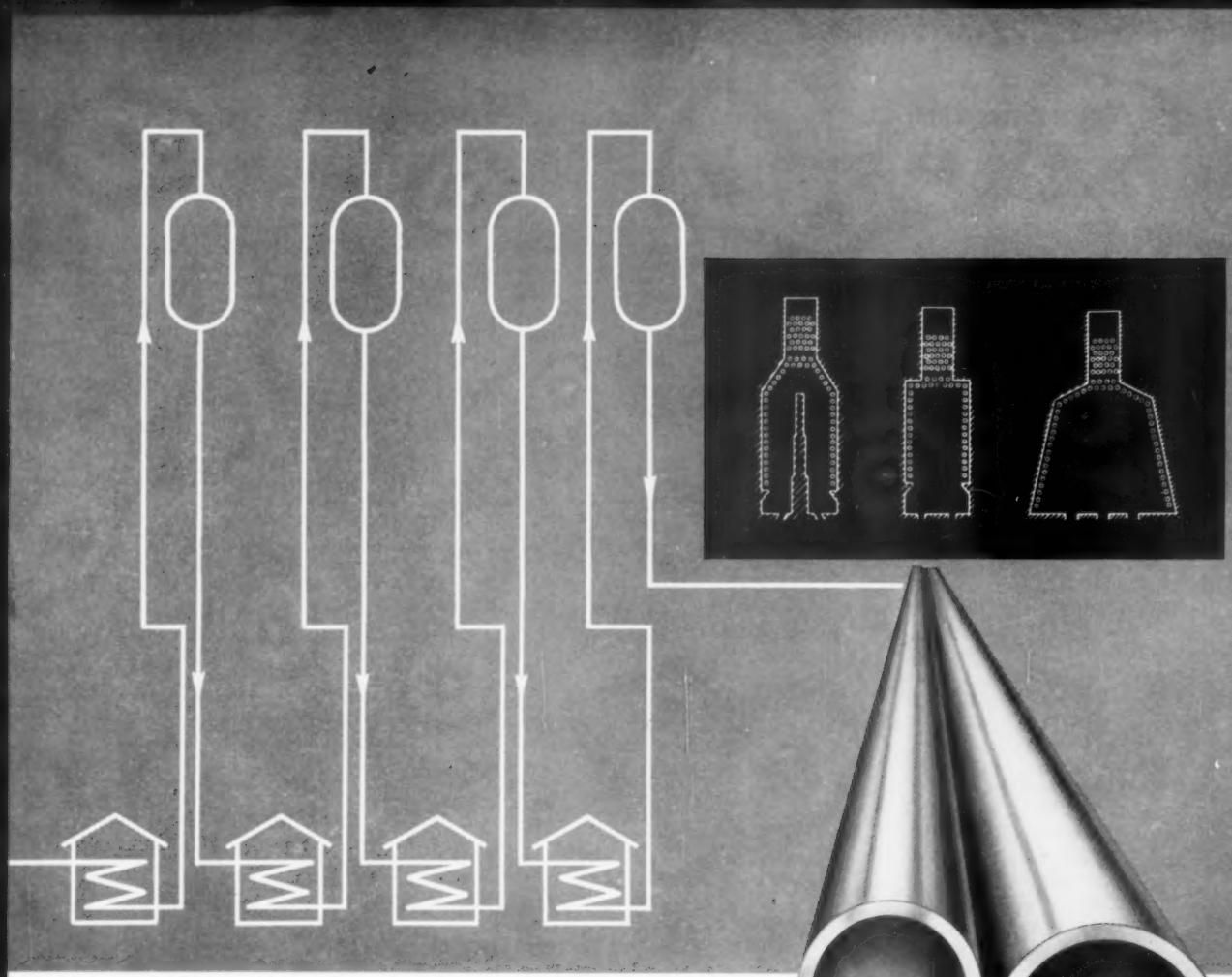
The world's first plant to make synthetic gasoline and chemicals from natural gas in commercial quantities will close down. Amoco Chemicals Corp., operator of the plant at Brownsville, Tex., announced last week that the plant was a "technical success, but an economic disappointment."

"The plant cannot make gasoline and chemicals at present market prices as cheaply as they can be made by other processes," according to Jay H. Forrester, president of Amoco Chemicals.

•

Sunland Refining Co. has just put on stream a 1,000 b/d Platformer at its Bakersfield (Calif.) plant.

The unit, licensed by Universal Oil Products Co., is producing a 98-octane (clear) motor fuel component.



HOW MANY PROBLEMS IN THIS PICTURE?

Some layouts present a multiplicity of engineering, purchasing, warehousing and financing problems. Conceivably, (1) Return bends have to be designed for a perfect fit on their heater tubes, (2) Both tubing and fittings must meet the same exacting customer standards, (3) Simultaneous delivery must be made to guarantee erection schedules, and (4) Money tied up in material in process at any one time must be kept to a minimum.

In such a situation, it's best to depend upon Mr. Tubes for coordinated delivery of perfectly matched tubing and fittings.

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Details of Iran-Italy Pact Released

IRAN—A U.S. oil company may wind up sharing in the highly publicized joint venture between National Iranian Oil Co. and AGIP Mineraria, producing subsidiary of Italy's state-owned Ente Nazionale Idrocarburi.

Official sources in Rome had confirmed earlier that ENI president Enrico Mattei was dickering with an American firm for exploration of the three areas involved in the venture (PW—Aug.30'57,p7). Since then, it has emerged that the U.S. firm, as yet unnamed, is in fact an oil company, and not a contractor.

Under the terms of the NIOC-AGIP contract, the U.S. company could actually be assigned a share in SIRIP, the joint stock Iranian-Italian company.

SIRIP is scheduled to be formed within 60 days of the contract's effective date.

Formal signing ceremonies took place in Teheran last week coinciding with the official visit of Italy's President Giovanni Gronchi (PW—Aug.23'57,p62).

Mattei announced, on his return to Italy, that exploration would start immediately.

Here's a rundown of the terms of the controversial contract, a model of the type of joint venture Iran would like to see concluded in further agreements under its new oil legislation:

• **Operations** (Art. 1 & 2): The joint stock company, Societe Irano-Italienne des Petroles (SIRIP), will be under Iranian law. It may go into refining, as well as exploration, development, and marketing of crude and other natural hydrocarbons.

• **Areas** (Art. 3): Its three exploration areas are: (1) approximately 5,600 sq. km. of the continental shelf in the northern part of the Persian Gulf; (2) an 11,300-sq. km. continental area on the eastern side of the central Zagros ;(3) a 6,000-sq. km. coastal region of the Sea of Oman, extending to the continental shelf.

• **Shares and management** (Art. 4): SIRIP's initial capital will be equally subscribed by NIOC and AGIP.

Members of the board and the comptrollers' panel will be equally appointed. NIOC will appoint the chairman of the board, AGIP the vice-chairman.

AGIP will appoint the managing director, who is also to be the director general. He will appoint the technical management.

Chairman of the comptrollers' panel will be neither an Iranian nor an Italian. He will be appointed by a Swiss fiduciary or auditing firm.

• **Capital** (Art. 5): Initial SIRIP capital, 10-million rials, may be increased as needed.

• **Voting interest** (Art. 6): Each partner will deposit 1% of its SIRIP shares with the Swiss Bank Union. This 2% voting interest will be exercised by an appointee designated by both—or by a disinterested national of a third country appointed by a Swiss court.

• **Borrowings** (Art. 7): SIRIP may borrow funds required above original capital. Where conditions are unfavorable, each partner must meet half the requirements, charging SIRIP no more than 7% interest.

• **Exploration obligations** (Art. 8): AGIP is responsible for planning of exploration, and for execution of it —either directly or indirectly. It assumes all exploration costs in full.

The criterion for determining the end of the exploration period is the completion of a "field discovery wildcat," using that term according to the F. H. Lahee definition adopted in the U.S.

SIRIP will refund exploration costs when oil is found—but only if it is a commercially recoverable reserve.

The deposit will be considered to warrant commercial operation if, by joint agreement, the partners determine that the recoverable quantity of oil can be delivered to seaboard with a reasonable profit over costs.

These costs will be the total of production cost, plus transport and loading expense, plus a figure equivalent to 12½% of the posted price—which will be a minimum payable to Iran as income tax and royalty. This total then will be subtracted from the posted price of oil of similar quality to determine the potential profit.

• **Development costs** (Art. 9): SIRIP takes over costs after a discovery.

• **Advances** (Art. 10): AGIP must advance SIRIP sums to cover exploration for further deposits, after the first oil is found.

AGIP's expenditure will be refunded on completion of a new field discovery wildcat. Failing such completion, the refund will be made immediately following the 12-year exploration period.

• **Exploration credits** (Art. 11): Payment of credited sums will be made by SIRIP as soon as possible, and in annual payments of not less than the equivalent of 10¢ (U.S.) per bbl. of exported crude.

Of the amount credited to AGIP as refund for exploration work executed, 50% will be paid by SIRIP to NIOC.

• **Production** (Art. 12): An annual production program will be drawn up in advance.

NIOC will buy up to 5% of a field's total production for local de-

ITALY'S ENRICO MATTEI plans early start on exploration in Iran.

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mand, at cost plus 14¢ (U.S.) commission.

SIRIP will offer NIOC and AGIP first option on oil available for sale. SIRIP may sell it to other buyers if neither partner can offer conditions acceptable to SIRIP.

• **Posted prices** (Art. 13): SIRIP will publish posted prices for each export point. They will be those current in the Persian Gulf area for crude of similar qualities and gravities.

Rebates to buyers, where considered necessary by SIRIP, will be determined by a panel including two SIRIP directors, chosen one each by NIOC and AGIP.

• **Natural gas** (Art. 14): All surplus gas produced alone must be delivered to NIOC for Iranian consumption by SIRIP.

If SIRIP goes into refining, it must pay NIOC for gas used as fuel.

For natural gas produced with the crude, however, NIOC will pay SIRIP for costs of extra plant and of delivery.

• **Goods and services** (Art. 15): SIRIP will give preference to the Italian market if prices are competitive.

• **Accounts** (Art. 16): Amortization will be computed at an annual average of 14%. Accounting operations will conform to current oil industry practice.

• **Profit sharing** (Art. 17): 50% of net profits will be paid to Iran as taxes and royalties. The other 50% will be shared equally by NIOC and AGIP.

"Net profits" is defined as gross income after deducting operating expenses in Iran and abroad, including overhead, amortization, and losses as provided by Article 35 (D) of Iran's 1949 Income Tax Act.

• **Exploration timetable** (Art. 18): Surface exploration must start within six months, and drilling within four years.

The exploratory phase in any of the three licensed areas continues until completion of a field discovery wildcat, and until all possibilities in the areas are exhausted.

The contract ends after 12 years if no commercial production is established, and SIRIP will be liquidated.

• **Exploration expenditures** (Art. 19): AGIP must spend no less than $22-million in the 12-year exploration period—$6-million in the first four years, and $16-million thereafter at the rate of $2-million annually.

AGIP may withdraw at the end of the fourth year, and after each year following. But if there is an unspent balance for the period, half of it must be turned over to NIOC for the government's account.

• **Working facilities** (Art. 20-25): Details are spelled out on such routine rights required for execution of exploratory and development operations as: land (free use when government-owned); installation sites, including those for marketing operations outside the leased areas; water; earth-moving; and use of oil for exploration (for which AGIP must pay SIRIP the cost price).

• **Acreage reduction** (Art. 26): SIRIP's aggregate acreage will be reduced 25% after the fifth year, and a further 25% after the ninth year.

At the end of the 12-year exploration period, SIRIP may retain only lands in which commercial deposits have been discovered.

• **Currency conversion** (Art. 27): SIRIP and AGIP need not convert any part of their capital into Iranian currency except sums needed to cover expenditures in Iran.

• **Exchange rate** (Art. 28): The "commercial rate of exchange current among bankers" will apply to SIRIP and AGIP. The government will enable them to buy Iranian currency against any foreign currency quoted by the Melli Bank.

• **Funds** (Art. 29): NIOC and AGIP must each furnish half the sums needed for SIRIP's activities. Export sales of crude produced by SIRIP must be made in currencies acceptable to NIOC and AGIP, or any of those quoted by the Melli Bank.

SIRIP retains free disposal of foreign currencies it accrues.

• **Dollar accounting** (Art. 30): Accounts will be kept in U.S. dollars.

• **Imports** (Art. 31): All equipment, materials, and supplies needed by SIRIP and AGIP for their work may be imported without duty.

• **Exports** (Art. 32): Oil is freely exportable, and exempt from customs and export duties.

• **Foreign staff** (Art. 33): SIRIP's foreign personnel will be limited to positions that Iranians are not qualified to fill. Even these will be replaced as soon as possible.

• **Liquidation** (Art. 34): SIRIP's assets may be sold or transferred pro rata to the shareholders when the contract ends. Fixed assets will be transferred to NIOC without charges.

• **Duration of contract** (Art. 35): The contract runs for 25 years starting with the sale of oil, with three five-year extensions permissible at the request of either party.

For the second and third extensions, NIOC may impose new conditions if it has found that such terms have brought better results in its associations with other foreign companies in Iran. AGIP, however, can turn down these two extensions.

The "start of sales" is defined as the stage when installations are complete for regular transport and loading, and the first 20,000 tons of oil have been sold. SIRIP is obligated to start developing a field as soon as oil is discovered in commercial quantities.

• **Individual fields** (Art. 36): The provisions on duration and extensions of the contract apply to each deposit individually, and to sale of oil from each deposit.

• **Obstacles** (Art. 37): The contract is not breached if obligations cannot be carried out due to natural disasters, or to any other events beyond the control of the partners.

• **Share transfers** (Art. 38): NIOC and AGIP are the partners to this agreement. It remains in force even if one or both transfer the whole or a part of their shares to third parties acceptable to SIRIP. If NIOC ceases to exist, its obligations become direct liabilities of the Iranian government.

• **Changes** (Art. 39): No legislation or administrative act can abrogate or change the contract or prevent its implementation.

• **Laws** (Art. 40): The agreement will be construed and implemented under common principles of Iranian and Italian legislation, or those applied by international courts.

• **Text** (Art. 41): The French text is official.

• **Arbitration of disputes** (Art. 42-45): Machinery for settling various types of disputes is outlined in detail.

Any dispute may be settled by unanimous decision of a four-man conciliation commission including two members appointed by each party.

Technical and accounting disputes may be settled by a single mutually acceptable expert, or by three experts whose majority decision would hold. Each partner would appoint one, and these two would appoint the third.

Differences of interpretation, application, or execution of the agreement will be submitted to a three-man Arbitration Tribunal in Geneva (not persons from Iran or Italy).

Each party appoints one, and these two appoint the third, who is also chairman. If they cannot agree on the third, he will be appointed by a Swiss court.

Each party must cooperate in supplying data for settling of disputes.

• **Iranian authority** (Art. 46): The Finance Minister has power to carry out the provisions of the agreement on behalf of the Iranian government.

• **Statutory force** (Art. 47): The agreement, signed by NIOC and AGIP, and confirmed by Iran's Council of Ministers, has statutory force as provided under Section 2 of the Iranian Petroleum Act.

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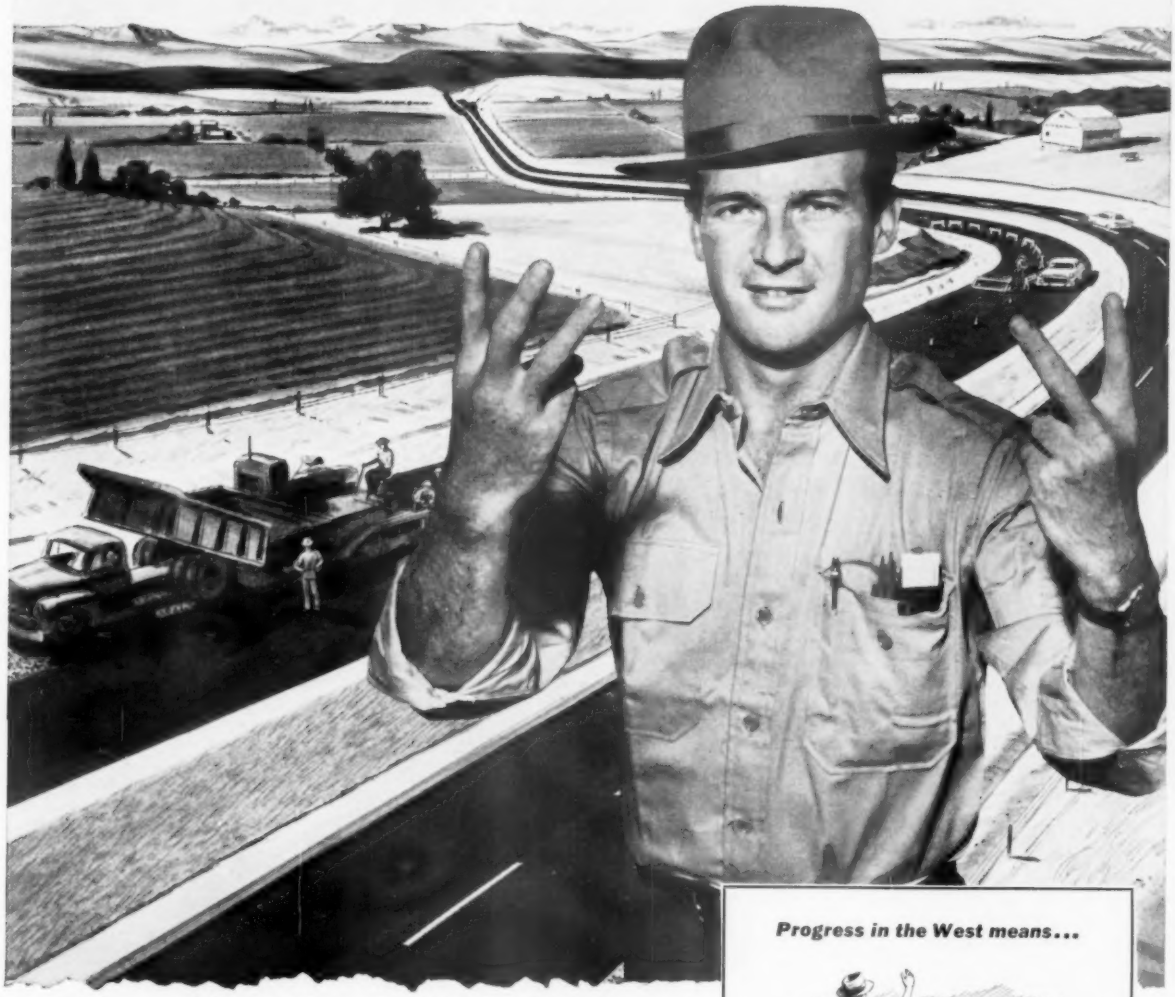

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What's New / AROUND THE WORLD

Soviet Deal Includes Syrian Oil Search

SYRIA—The much-publicized Soviet economic aid agreement with Syria includes large-scale oil exploration.

According to officials of Syria's Public Works Ministry, the Soviets will send teams of geologists and petroleum engineers to Syria in the near future as part of their economic and technical aid program.

They will also ship seismic and drilling equipment to Syria.

"The Soviets assured us that they do not want to acquire any monopolistic concessions in this country," Public Works Minister Fakher el-Kayyali said.

"They informed us that they have all the oil they need for a great many years, and that many of their oil fields are not yet developed.

"This assures us that the Russians have no political or economic aims. All they want is to help us," Kayyali added.

Syria will grant exploration rights to any nation which has "no political ambitions" in Syria, adds Economy Minister Khalil Kallas.

According to new Syrian definitions, the U.S., Britain, and France have political ambitions in Syria; Russia doesn't.

•

Texan to Get Oil Rights

JORDAN—J. W. Sparks, a Texas operator and drilling contractor, will take over a concession for one-third of Jordan from Jorge Zimeri, Guatemalan industrialist.

Sparks' associates in the venture confirmed last week that Zimeri's application for the exploration rights were approved late last month by Jordan's Minister of Economy and the Cabinet. Formal signing is expected in the next few weeks.

Sparks and his associates concluded negotiations with Zimeri to take over operation and obligations of the concession. Zimeri reportedly retains an overriding royalty interest.

Among those holding interests in the operating company that Sparks is now forming for the venture are petroleum engineer Robert W. Tyson and attorney Harvey H. Hutchins, both of Jackson, Miss. Sparks at present is most active in Mississippi. He also has interests in Texas and Arkansas.

The Jordan concession will be the second in that kingdom. Phillips Petroleum now has a 50% interest in the first, which was granted to Edwin W. Pauley (PW—Sep.13'57,p66).

The remaining one-third of Jordan's acreage may go to an Italian group—apparently Ente Nazionale Idrocarburi. But terms will be stiffer, according to reports of the negotiations now under way.

•

Another Qum Well Hits

IRAN—Oil has been found again in the Qum area, at a site 1½ mi. due west of the No. 5 Alborz gusher that blew wild for three months last year (PW—Oct.26'56,p27).

The No. 6 Alborz hit pay at 8,754 ft. on Sept. 5, according to a report from Teheran last week. No further details were made available.

The well, about 75 mi. south of Teheran, was drilled for Iran Oil Co. by Drilling & Exploration Co.

IOC, a subsidiary of National Iranian Oil Co., plans to drill No. 7 Alborz itself.

•

New Mideast Record

Middle East crude output climbed to another record in July, with a total of 3,878,100 b/d from key producing states. Despite an 87,000 b/d cutback in Kuwait from record production in June, total output in July pushed 20,000 b/d over the previous all-time high, set in June.

This was due to new all-time records in Saudi Arabia, Iran, and Qatar, plus a continued climb in Iraq's still-crippled oil flow.

Here are the totals, in 000 b/d:

	July '57	July '56	June '57
Kuwait	1,293.8	1,204.7	1,380.6
S. Arabia	1,209.8	1,033.6	1,164.3
Iran	756.0	593.0	731.0
Iraq	458.5	752.2	435.1
Qatar	160.0	131.5	147.0
Total	3,878.1	3,715.0	3,858.0
7-mo. avg.	3,189.6	3,750.6	

•

Third U.S. Firm Eyes Arabia

ARABIA—Atlantic Refining is the latest company reported interested in new oil rights, both onshore and offshore, in the Arabian peninsula.

Onshore, Atlantic is eyeing acreage in the interior of Saudi Arabia.

Offshore, the firm is reported interested in marine acreage from Kuwait, as well as from the Saudi Arabia-Kuwait Neutral Zone.

Conorada, Indiana Standard, and the Japanese also have recently been looking at the Saudi Arabian interior and at the Neutral Zone offshore (PW—Aug.16'57,p17).

•

Jersey Sets First Test

DENMARK — Danish-American Prospecting Co. has scheduled its first test since it was acquired by Jersey Standard.

A rig will be shipped from the U.S. next month to a test site in the Vem area, on the North Sea coast of Jutland. Contractor is K. L. Kellogg & Sons, of Compton, Calif., which recently formed a subsidiary for drilling abroad.

Danish-American was originally a subsidiary of Gulf Oil Corp., which acquired exploration rights over the whole of Denmark in 1938. It had drilled six deep tests before Jersey Standard acquired the rights through purchase of Danish-American.

•

FRENCH WEST AFRICA—Plymouth Oil Co. may join an exploration venture on the Ivory Coast, near the Ghana border.

The Pittsburgh independent is negotiating for a half-interest in a 3,700-sq. mi. permit recently granted to Soc. Africaine des Petroles. The latter is 80% owned by the French government.

•

NETHERLANDS—Standard Oil Co. (N. J.) will start building a 100,000 b/d refinery near Rotterdam next year.

Government approval came through last week for a plant 2½ times the size originally planned (PW—Jun.29 '56,p22).

The $46½-million refinery is slated for completion in early 1960. Much of its output will be exported.

Badger-Comprimo N. V., of The Hague, will be in charge of construction and engineering. Process designing was done by Esso Research & Engineering.

The plant will be Holland's third, increasing refining capacity to 441,000 b/d.

The two present plants are owned by Shell (300,000 b/d) and Caltex (41,000 b/d).

What Ten Companies Say about Dealer Recruiting Problems

	A	B	C	D	E	F	G	H	I	J
1. Are you getting enough good dealers?	no	no	no	no	yes	no	no	no	yes	no
2. Best source of good dealers	personal contact	customers	dealer-salesman contacts	credit-card holders	own stations	word-of-mouth	present dealers	rival co.'s dealers	individual search	auto agencies
3. Do you help finance promising dealers?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
4. How do you screen dealers?	hit-or-miss	oral test, credit check	test, interviews	two interviews	field man's appraisal	tests, interviews	interviews	interview with wife, credit check	interviews, references	interviews
5. Biggest obstacle to getting good dealers	paying competitive salary	paying competitive salary	upgrading job	paying competitive salary	none	upgrading job	upgrading job	lack of men with experience, ambition, capital	lack of men with capital	lack of men with capital

Marketers Search for Better Dealers

Major oil companies—faced with expanding retail markets—are finding it tougher than ever to recruit qualified station dealers, a Petroleum Week survey reveals.

In a spot check of ten leading suppliers, eight companies report that finding enough good dealers is a serious problem.

"There are quality dealers," says one marketer, "but not in abundance. To get them requires intensive screening."

Other companies are finding that new dealerships are opening up weekly, sometimes daily. And there just aren't enough high-caliber men who can be attracted to the business.

The continuing obstacles to finding good dealers are: (1) finding men with enough capital to invest in a station; and (2) making the service station business attractive to qualified men.

Many young men who show signs of being good dealers just don't have the $5,000 to $10,000 it takes to get started in the service station business.

And a man who is not already in the business may not see the opportunities of being a dealer.

One marketer sums the situation up this way: "The general public just doesn't realize that the service station offers a man a chance to get into business for himself. They don't think of the service station in terms of an opportunity to work for more than just wages."

Says another: "Not enough people realize that being a dealer requires a great many talents . . . nor do they know how financially successful a good dealer can be.

Oil companies also have to compete with other industry, where men can make as much or more money for shorter hours than are demanded of a dealer.

Most companies are tackling the first of these problems by offering part or total financial assistance to the promising dealer who doesn't have enough capital.

"We find the right man first," says a major company marketer, "and worry about financing afterward. The company's usual policy is to set 50% of the total investment as its maximum financial assistance. But in certain cases we will finance 100%, if we feel we have the right man."

Most companies will provide gasoline inventories on consignment. Some provide lube and service equipment on a conditional sales contract, which is paid off over a period of three to four years. Sometimes the supplier arranges for the dealer to get TBA merchandise on credit also.

Most companies are cautious about sinking money into a man unless they're sure that he will make a good dealer. Often, the financed dealer already is a company employee, and the company has a thorough knowledge of his character, dependability, and credit rating.

The industry as a whole is striving to upgrade the prestige of the service station business in the public eye—and of prospective new dealers.

Many companies feel that the best advertising for the service station business is the successful dealer himself. The word-of-mouth promotion that can develop this way far outweighs the value of billboards, newspaper ads, and other promotions. This has led to greater stress on supplier-dealer relations, and on such benefits as group life insurance programs for dealers.

One company believes that its stepped-up dealer-training program will do a lot to upgrade the stature and success of dealers. This helps dealers succeed, and those who do will spread the word that "there is a solid future in the service station business."

Another company is aiming at chambers of commerce and civic groups, to see what can be accomplished by acquainting them with the service station business. It has had some success in getting names of potential new dealers from these groups.

It's who you know that counts in today's search for good dealers, say most marketers. The best source of dealer recruits is through personal contact in the local community. But suppliers are also trying new avenues, such as recruiting meetings, customers, and credit-card holders.

Most companies advertise in newspapers and trade magazines for prospective dealers. But most marketers maintain that the best sources lie in contacts which salesmen or present dealers have in the community.

Men may hear about dealerships through other dealers. Another source of possible new dealers is the second man in a station, who already has some station experience.

The problem with picking station assistants to be dealers, says one marketing man, is that too often the original dealer hasn't made good employee selections, though he may have picked the best available.

Some of the best dealers are those who have had experience in other trades: milkmen, grocerymen, etc. They are well-known in the community and have some sales and managerial experience.

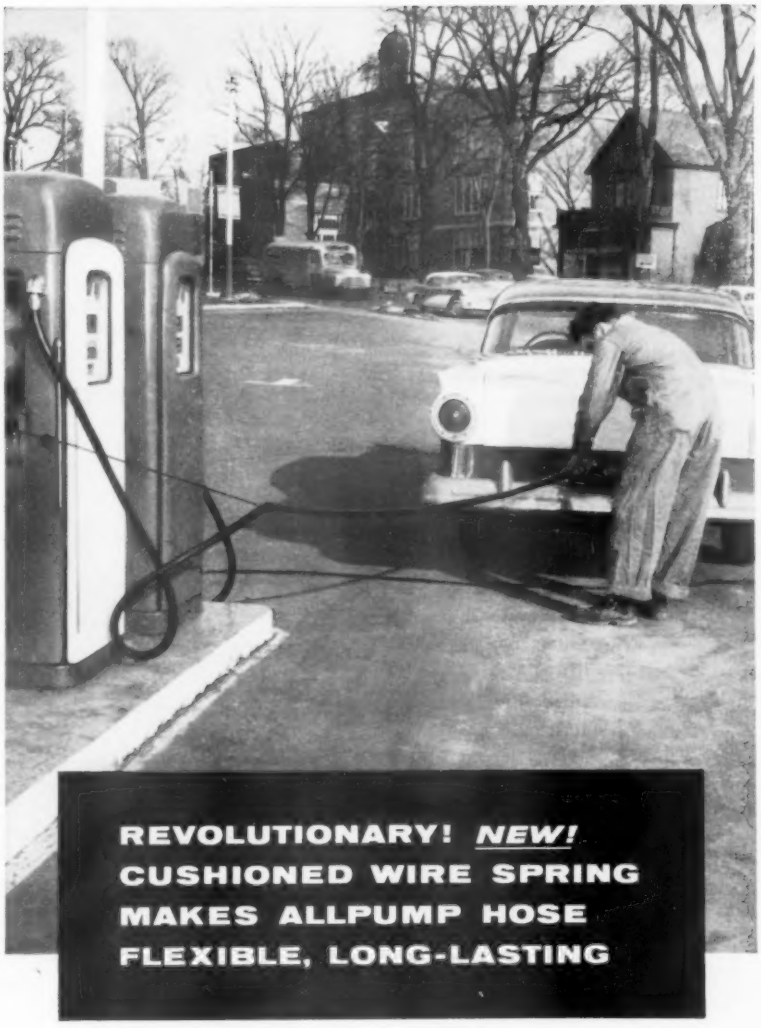
One company has found dealer recruiting meetings to be a profitable source of dealers. Potential dealers and civic leaders are invited to attend the meeting, at which the problems and potentials of the service station business are explained.

Credit-card holders of one major company received a pamphlet entitled, "Well Worth Looking Into." Persons interested in a dealership were urged to contact the company's marketing headquarters. The company reports that it has been swamped with replies, and is waiting for followup calls in the field to determine the real effectiveness of the pamphlet.

Several companies quite frankly admit that they sometimes get dealers from competitors' stations. But most agree that this isn't a good policy. The kind of man who's willing to switch is often a "floater," and thus not a good risk anyhow, they say.

In greater demand than ever is the dealer who is willing to work long hours, and has the ability to manage finances and to sell. Most companies also prefer a man with some business experience, but not necessarily in a service station operation.

These qualifications rank at the top



Now! One hose for all styles of gasoline pumps! Maltese Cross Allpump Hose, with the exclusive "cushioned wire spring" principle, provides unequalled flexibility, durability, and high carcass strength. It withstands twisting, kinking, and abrasion of gas pump service. The cover is impervious to all gasolines, diesel fuels, and weather.

When filled with high test gasoline, H-R Allpump Hose exceeded *by 25 times* the 18,900 cycles required for the UL "single wheel" flexing test; it exceeded *by 10 times* the 35,000 cycles required for "pull-out" flexing. Special construction eliminates tube and cover blisters, and prevents carcass separations in the coupling area. There is no price premium.

To find out how H-R products and services can help you, consult your classified telephone directory for the nearest H-R representative, or contact Hewitt-Robins, Stamford, Connecticut.

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CONVEYOR BELTING AND IDLERS...POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE...VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

of the several dozen mentioned by the ten companies surveyed.

"A good dealer must be a good public-relations man, a community booster, friendly, and all the other things that go to make up an affable kind of person," says one marketer.

Some of the other qualifications companies look for in prospective dealers are: financial integrity, enthusiasm, dependability, a mechanical inclination, ability to manage people, the right attitude toward the service station business and toward being in business for himself, good credit, good health and appearance, business acumen, honesty, faithfulness, a good following in the community, ability to learn.

How does a company know if a man will fill this bill? It doesn't for sure, but it tries to find out through screening techniques that range from psychological tests to interviews with the man's wife.

Every company surveyed uses interviews and reference and credit checks to help determine a man's fitness for a dealership.

One company also gives its dealer applicants an arithmetic test, a confidential biography form and a property statement to fill out, and a mechanical comprehension test.

Other companies rely more heavily on their knowledge of the man and their field managements' appraisal of his ability.

One company interviews the applicant's wife at home—to see if she will be a part of the "team" and is willing to go along with the long working hours.

"Our screening is hit-or-miss," admits one marketing man, "but we're working with a consultant now to find a system somewhere between this and very scientific screening."

The real problem lies not in the success of the screening techniques, says one marketer, but in finding enough men to screen.

Some companies hope to improve this situation through programs aimed at attracting high school and college students into the service station business.

Most companies participate in American Petroleum Institute and Oil Information Committee programs to acquaint young people with the oil industry.

Some firms have gone a step further, and are now planning programs of their own.

One marketer says that his company's use of part-time employees from colleges has proved very successful in getting young men interested in the business.

What's New / IN MARKETING

'Push Button' Pumps?

"Push button" gasoline sales may be just around the corner. If a new, experimental preset device is successful, station attendants will be free to spend more time on service and salesmanship.

Veeder-Root, Inc., of Hartford, Conn., the leading manufacturer of gasoline pump computers, has developed the new "push button" device. It enables the attendant to push one of eight buttons and be sure that the pump will deliver a specific dollar or gallon amount of gasline into the customer's tank. He can then leave the pump to clean the windshield, check the oil, or push the sale of TBA items. In a nutshell, it's two-man salesmanship and service—with only one man.

The device is not in production yet, but is still in the experimental stage, Veeder-Root officials stress. Field tests at an East Hartford (Conn.) station have brought enthusiastic response, the company reports.

What Is It?

A man shining his shoes? A new kind of plastic rainshoe? A sprained ankle? No, it's a bootee worn by Ray Nathan Oil Co.'s burner service men. Each man has five pairs of bootees, and carries two clean pairs at all times. When a housewife opens her door, the service man stops to put on his bootees before entering the house. Questions about the spotless, white bootees usually follow. His answer: The bootees keep the house clean and are "a part of Nathan's burner service." As a result, this Freeport (L. I.) distributor is building customer good will and winning new fuel accounts.

Salaries of nonsupervisory service station employees, nationwide, average $1.21 per hour, according to a Bureau of Labor Statistics survey made in October, 1956. The report is based on the earnings of 390,000 employees. Average earnings exclude overtime pay, but include commissions and bonuses.

Other findings: 10% earned less than 75¢ an hour; 25% earned less than $1.00 an hour; 56% earned less than $1.25 an hour; 1% earned $2.50 or more an hour. About 4% of the employees were women, whose earnings averaged $1.00 an hour. The report also shows that men earning less than $1.00 an hour range from 6% in the West to 52% in the South. Employees in metropolitan areas average $1.33 an hour; in nonmetropolitan areas, $1.02 an hour.

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The probability of court tests on Federal Trade Commission labeling requirements for re-refiners is growing stronger (PW—Jul.26'57,p52).

FTC last week issued a new order to stop Salyer Refining, of Oklahoma City, from selling reclaimed and reprocessed lube oil without saying it is made from used oil. After an FTC complaint in 1955, Salyer began to label its lube can with the words "guaranteed re-refined" in large type near the brand name.

In smaller type on the back of the can is the statement that the oil has been re-refined.

But this isn't enough, ruled FTC examiner Wm. L. Pack, to inform the public that the product is made from previously used oil.

Meanwhile, FTC hearings continue on mislabeling complaints against Double Eagle Refining, of Oklahoma City. The company maintains that it should not be required to label its oil as reclaimed. FTC attorneys argue that quality is not an issue, only the public's "right to know."

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Total product sales at U.S. gasoline service stations in August were $123-million above a year ago, the Census Bureau estimates. However, last month's total $1,376,000,000 dropped from $1,383,000,000 in July. Total sales in August, 1956, reached $1,253,000,000.

NEW RCA "MINITROL"

MINIATURE

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"Greatly Increases Dispatching Efficiency"

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Here's big news for users of RCA 2-Way Radio equipment —a compactly styled unit which combines the microphone, controls and speaker!

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- Transmitter is activated by foot switch, freeing dispatcher's hands for other work.
- Message is directed toward dispatcher, reducing distraction to other personnel.
- Designed to provide maximum mounting flexibility, offering more combinations of equipment than ever before possible.
- Used to control local or remote control equipment.
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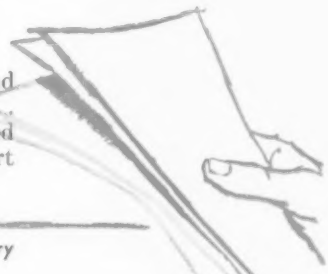
Your communications system is only as efficient in saving time and earning profits as its components. RCA . . . world leader in radio . . . offers you quality equipment to meet every requirement. Advanced engineering means greatest satisfaction, lowest maintenance. Expert service by RCA Service Company to assure peak performance.



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DEPT/Transportation & Storage

'Bigness' Is the Growing Trend

Significant changes are on the way in all forms of crude and product transportation according to experts heard at last week's National Petroleum Assn. meeting. A chief trend: "bigness."

At the meeting, NPA's department of traffic and transportation sponsored a panel discussion on new and anticipated developments in equipment for crude and products transportation.

Equipment experts for transportation by pipeline, railroad, highway, and water participated in the discussion, each giving oil men a summary of probable equipment developments in their respective fields.

In pipeline operations, more use of larger-diameter line, better pipe materials, and more automatic lease tank gauging now appear certain.

Gordon C. Locke, general counsel of the Committee for Oil Pipe Line Companies, made these points during the panel discussion.

Locke pointed out that the trend is definitely away from small-diameter lines, and largely because of equipment available—"huge, modern, mechanized construction equipment, capable of laying lines of 20, 24, 30, and 36 in. at an average rate of a mile a day"—the trend will continue.

Increasing use of better, alloy steels in line pipe, and automatic lease tank gauging, according to Locke, will have a great effect on pipelines. The latter, he said now in the experimental stage, "should be one of the foremost developments in future pipeline operations."

Also on the way: increasing neutralization of highly corrosive electric ground currents; new applications for radio isotopes; and better communications, using microwaves.

Locke contended that "most external corrosion is caused by electric currents in the ground. Every effort must and will be made to neutralize these currents by setting up counter-currents. Magnesium anodes are used extensively for corrosion protection."

He also reported that radioactive isotopes are being used in oil streams to mark the dividing point between different batches.

The expanding use of microwave systems, according to Locke, means more efficiency in pipeline communications: "The microwave with the large number of circuits is an important recently-developed aid in remotely controlled operations. Microwave is permitting the widespread use of telemetering so that gauges and meters can be read, and temperatures and measurements taken, at centrally located points."

Railroad tank car manufacturers predict larger, lighter and more economical cars for hauling products.

J. P. Krumech, sales vice-president of Shippers' Car Line Division of ACF Industries, Inc., told the meeting that "king-size" tank cars are now "here to stay because they are economical."

By "king-size," Krumech means cars like ACF's comparatively new 19,200-gal.-capacity "maximum-sized" cars (picture) which are said to offer about 90% more capacity than standard cars for only 27% greater cost.

Now the emphasis is on providing cars of this size which can carry high-pressure light products, such as butane and propane. ACF recently sold 700 cars for this type of service to Phillips Petroleum Co. The Phillips cars are the first uninsulated cars for high-pressure products to receive Interstate Commerce Commission approval. The uninsulated cars are less expensive.

Other representatives of tank car companies made similar points:

E. A. Locke, of Union Tank Car Co., said that his company, too, has stressed lighter weight, more capacity, and more payout in designing its newest tank car for serving the petroleum industry.

T. M. Thompson, of General American Transportation Corp., told the meeting that, "These days tank cars are getting more and more specialized, due to the many products being developed. One of the most widely used special cars is equipped with interior coating."

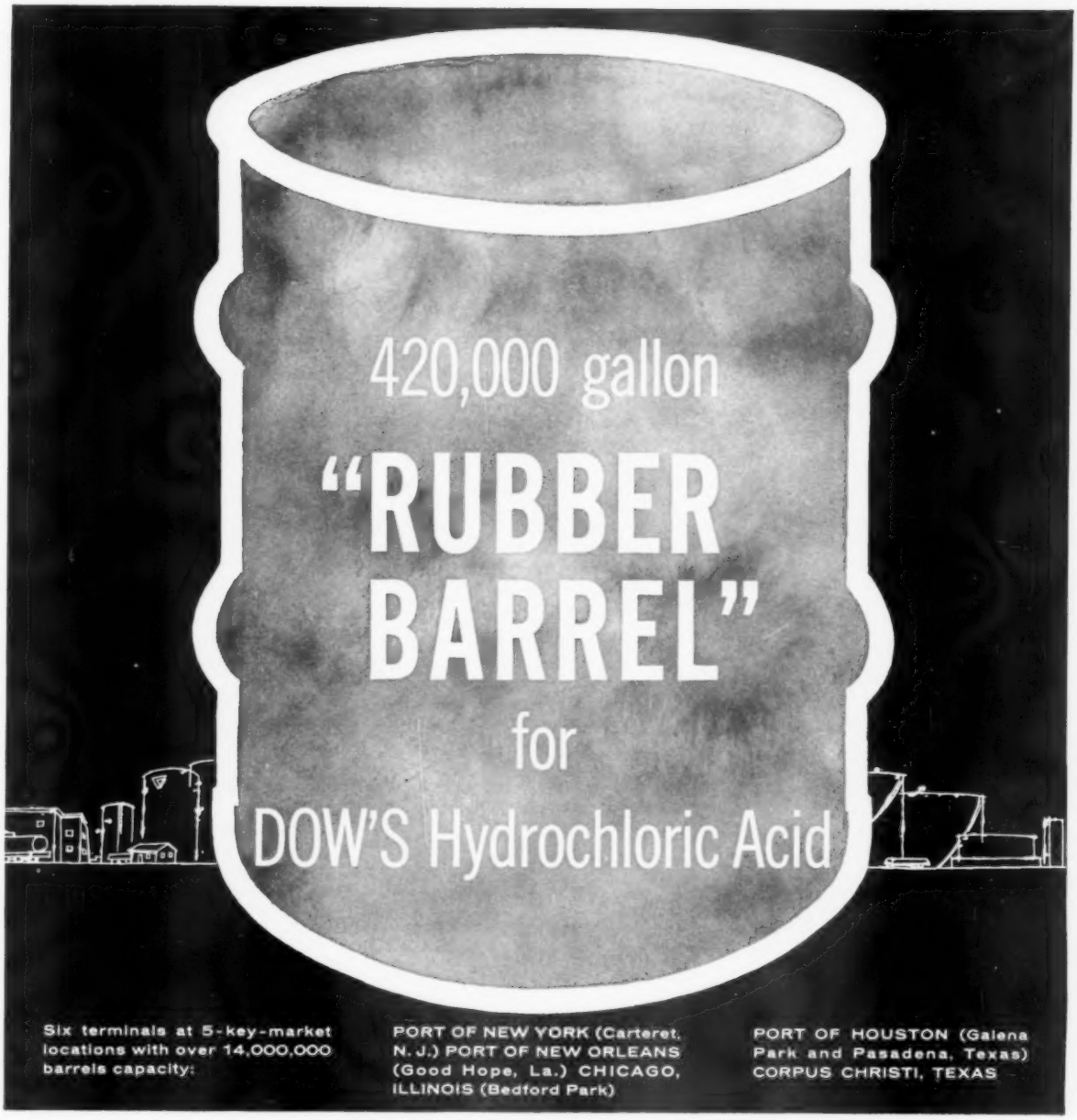
Future tank motor vehicles for flammable liquids, NPA heard, will have an average capacity of 8,900 gal., and will be bottom loaded.

These predictions came from Austin Sutherland, managing director of National Tank Truck Carriers, Inc. He also said that such vehicles will generally have a single compartment, and will be made of aluminum or stainless steel.

Barging rates could be reduced by as much as 30% if crude and product cargoes were larger but less frequent. But this is unlikely.

David Wright, president of Lake Tankers Co., attributed progress in the barging industry to increases in size, power, and speed of equipment. Wright feels that further increases along these lines could reduce costs significantly.

KING-SIZE TANK CARS, one of many developments discussed at last week's NPA meeting, carry 90% more than standard cars.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FPC Approvals Up In Fiscal '56

The Federal Power Commission authorized nearly 6,800 mi. of natural gas pipe lines and 350,000 hp. in compressor units in the year ending June 30, 1957.

FPC chairman Jerome K. Kuykendall's educated guess on the cost of such facilities: almost $616-million.

More than 2¼-million cf/d would be added to the nation's transmission systems by the projects authorized. The statistics include only facilities authorized for interstate natural gas pipeline companies; certificates issued to independent producers are not included.

Despite the substantial increase in total mileage, horsepower, and estimated cost as compared with a year earlier, the projects approved during the two years would increase daily delivery capacity in about the same degree.

That's because in the latter period there was an increased number of projects authorized for improvements in existing service, such as acquisition of additional reserves, expansion of storage facilities, or rearrangement and replacement of less efficient or "antiquated" facilities.

Since certificate provisions of the Natural Gas Act became effective, in February, 1942, FPC has authorized more than 75,000 mi. of line, nearly 5-million hp. in compressor units, and miscellaneous related facilities, at an aggregate cost of about $5.9-billion.

FPC also suspended 26 applications for rate increases and allowed six others to take effect without suspension during the 12-month period ending June 30.

Pipeline companies filed 32 rate-increase applications, totaling $95-million annually, during the period, as against 15 applications, totaling $25.7-million annually, during the preceding fiscal year.

What's New / IN TRANSPORTATION

The 156-mi. extension of the Interprovincial Pipe Line from Sarnia to Port Credit, Ont., is now in operation.

With the completion of the Sarnia-Port Credit spur (PW—May11'56, p23) Canadian prairie crude will now flow up to 1,930 mi. from fields in Alberta, Saskatchewan, and Manitoba to markets in the East.

Western Canadian crude will go to the British-American Oil Co. refinery at Clarkson, Ont. (next to Port Credit), about Oct. 1. Deliveries to Regent Refining Co.'s Port Credit plant will begin Nov. 1.

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Gillette Pipeline, Inc., and A. W. Hartwig, Inc., are planning a 103-mi. crude line from Dead Horse Creek, Wyo., to Casper.

Gillette and Hartwig have asked the Wyoming Public Service Commission for authorization for the $2.5-million line, which would make crude from the Dead Horse Creek field available to two major pipelines and three refineries at Casper. Line diameter is as yet undetermined.

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Ohio Fuel Gas Co. is expanding facilities for delivery of natural gas to Toledo and other northwestern Ohio cities. Ohio Fuel Gas is spending $3.5-million on two projects which will do the job:

- A 24-in. line is being built parallel to an existing 20-in. line from the Pavonia compressor station, in Richland County, to Toledo.
- An 18- and 20-in. line will be built from Toledo to Gibsonburg, about 23 mi. away.

Both lines are expected to be completed next month.

•

Building began last week on extension of Muskegon Pipe Line Corp.'s crude line from Griffith, Ind., to Muskegon, Mich.

The line will follow the eastern shore of Lake Michigan several miles inland.

Right of way has been acquired and the line survey is near completion. Parkhill Trucking Corp. and J. L. Cox & Son are stringing the pipe.

When completed late this year, the 10-in. extension will carry about 26,000 b/d from a connection with Service Pipe Line Co.'s crude system at Griffith to two refineries at Muskegon.

Service and Aurora Gasoline Co., which owns one of the Muskegon refineries, are partners in Muskegon Pipe Line Corp.

Trans-Canada Gas Line Pushes On

The line-up gang on the Trans-Canada natural gas pipe line is getting accustomed to working through marshy spots, like this one recently encountered near Carberry, Man. Sloughs and muskeg are almost routine for the crews who work from a "road" of tree trunks, planks, and sand much of the time. The 20-in. line, which will carry natural gas from Alberta fields to the growing Eastern Canada market, is expected to be completed in November. Cost: about $20-million.

DEPT/Personals

LOREN L. WARE has been appointed general superintendent of exploration for Sinclair Oil & Gas Co., in Tulsa. **Robert L. Elston,** exploration superintendent in Tulsa, succeeds Ware as assistant manager of the Midland division. Replacing Elston in Tulsa is **David L. Dobie,** staff landman, who has been with Sinclair since November, 1952.

L. L. Ware

W. L. Taylor

WARREN L. TAYLOR has been named to the newly created post of chief geologist for El Paso Natural Gas Co., El Paso, Tex. He has been serving as division superintendent at Salt Lake City. The Amarillo (Tex.) district office has been made a division, and **A. E. Miller, Jr.,** a geologist from Salt Lake City, transfers there as superintendent. Three newly named superintendents and their divisions are: **J. G. Wilkins,** Salt Lake City, replacing Taylor; **Roy L. Prichard,** Farmington, N. M.; and **Larry C. Zink,** Midland.

JOSEPH W. LEA has been promoted to regional geologist for Sun Oil Co.'s eastern region. From offices in Dallas, he will supervise geological work in the four eastern districts of Tyler, Tex., Shreveport, La., Jackson, Miss., and Tallahassee, Fla. Lea succeeds **Dr. Edward W. Hard,** who is taking over the western region, which includes districts headquartered at Roswell, N. M., and Midland, Abilene, and Amarillo, Tex. This region was formerly supervised by **Wallace Ralston,** who was recently named assistant division chief geologist—operational. Lea was formerly a senior geologist for Sun, at Dallas.

H. WILLIAM PETERSON has been named assistant manager of the alcohols and chemicals division of Enjay Co., Inc., Jersey Standard subsidiary that markets petrochemicals. He was formerly district supervisor in the Middle Atlantic area.

ROBERT N. WILLIAMS has been appointed consultant geologist to Empresa Nacional del Petroleo (ENAP), the Chilean government's oil agency. He will make his headquarters in Punta Arenas. He was formerly chief geologist for Coronet Oil Co., Midland, Tex.

NORTON L. NORRIS will edit Tidewater Oil Co.'s new monthly newspaper for its seven-state-and-Hawaii Western Division. The first issue will come out in October. Norris was employed by Crocker-Anglo National Bank in San Francisco from 1949 to 1956, the last four years as an officer in the public relations department.

BERNARD G. ZIV, public relations manager for Shell Oil Co. in Chicago, will be divisional chairman for the petroleum industry during the 1957 Muscular Dystrophy appeal for funds. Ziv is president of the Chicago Oil Man's Club, and vice-chairman of the Oil Information Committee.

J. L. SLEEPER, JR., has been appointed staff geologist in charge of domestic production for The Texas Co., New York. Since September, 1956, he has been assistant geologist in Texaco's West Texas division, Ft. Worth. **J. R. McMurry** has been promoted from district geologist at Midland to Sleeper's position in Ft. Worth. **W. J. Vaughn** replaces McMurry in Midland; and **J. H. Bass,** geologist in Midland succeeds Vaughn as district geologist at Wichita Falls, Tex.

JAMES R. GORDLEY is the assistant comptroller of American Oil Co., New York, a newly created position. Since 1955, he has been director of procedures and organization for the marketing department.

RALPH H. STARRETT will manage the products pipeline division in Kansas City, Mo., for Standard Oil Co. (Ind.). Division headquarters is being moved from Des Moines, Iowa, where Starrett is in charge. Three former district superintendents named to new pipline division-superintendent posts are **Francis W. Mann,** Chicago; **James L. Ashworth,** Kansas City; and **Herbert W. Wilker,** Minneapolis-St. Paul. Three former master mechanics promoted to superintendents in the mechanical division are **Alvis F. Smith,** Chicago; **Hugh Patterson,** Kansas City; and **Virgil J. Hansen,** Twin Cities. Superintendents whose titles change to managers are **Spencer A. Hallberg,** Chicago; and **Norman F. Tietze,** Twin Cities.

D. CARLTON JONES has been appointed assistant manager of production for Hudson's Bay Oil & Gas Co., in Calgary. He was formerly superintendent of natural gas utilization.

D. C. Jones

A. J. Wessely

ARTHUR J. WESSELY, has joined H. J. Gruy & Associates, Dallas petroleum consulting firm, as staff geologist. For the past two years, he has been a senior geologist for Core Laboratories, Inc., in Dallas.

ROBERT O. GARRETT, vice-president and general manager of Texas Gas Exploration Corp., Houston, has been elected a director. **James W. O'Keefe,** comptroller, has been advanced to treasurer. **W. J. Wooten** has recently joined the company as manager of the land department.

SHELL DEVELOPMENT CO. has reorganized its development division at Emeryville, Calif., to separate oil process development from chemical process development. Three men have been appointed to head new departments: **Edward Gelus,** oil reaction process; **George E. Liedholm,** oil process engineering; and **Gino J. Pierotti,** chemical separation. Gelus, Liedholm, and Pierotti were formerly assistant department heads in process development, process engineering, and physical chemistry departments, respectively.

N. A. KENDALL has opened a consulting office in Wichita Falls, Tex. For the past eight years, he has been a geologist and engineer for Bolin Oil Co., in Wichita Falls.

J. D. Harnett

H. W. Pattison

JOSEPH D. HARNETT has been appointed assistant to the president of Standard Oil Co. (Ohio), in Cleveland. He will continue in his present position as vice-president of transportation. **HENRY W. PATTISON,** general superintendent of transportation operations, will manage the transportation department. He will be responsible for the crude oil and petroleum product transportation activities of the company. These promotions follow the recent shift of **Richard S. Stewart,** from vice-president and assistant to the president to vice-president of production.

J. H. ECHTERHOFF has been named assistant to the executive vice-president of United Gas Pipe Line Co., Shreveport, La. He has been assistant general superintendent of gasoline plants since 1955. Three newly appointed superintendents are **G. Galt Pegues,** in charge of the western division; **C. E. Daniel,** in charge of the dispatching department; and **C. W. Evans,** in charge of the communications department. Prior to the promotions, Pegues was superintendent of the dispatching and communications department; Daniel was chief dispatcher; and Evans was an engineer in the telephone department.

MAXINE R. HACKE, Tulsa, was elected 1958 president of the Assn. of Desk & Derrick Clubs of North

America at the organization's recent convention at Chicago. She succeeds **Bettie Conley**, of New Orleans. Other new officers are **Ellen M. Vaughan**, Shreveport, La., first vice-president; **LeVerne Montgomery**, Lubbock, Tex., second vice-president; **Doris L. Allen**, Tulsa, secretary; and **Virginia Adcock**, McAllen, Tex., treasurer.

CHARLES E. PUTNAM, JR., has been appointed to the newly created post of field superintendent of Lone Star Gas Co.'s compressor department, Dallas. **Seth Davis** will succeed him as superintendent of the Joshua (Tex.) compressor station. **Harold C. Brawner** becomes assistant superintendent at Joshua; and **James G. Elder** advances from repairman B to repairman A, also at Joshua.

CLYDE C. COPPER has been named superintendent of measurement for Northern Natural Gas Co., Omaha, Neb. He succeeds **J. L. Griffin**, who has retired after 27 years' service. Copper has been department assistant superintendent since 1948.

C. C. Copper

G. L. Lupfer

GEORGE L. LUPFER is the new coordinator of commercial research development for Standard Oil Co. (Ohio), in Cleveland. Lupfer, formerly supervisor of the economics section, joined Sohio in 1941 as a process engineer at the company's Toledo (Ohio) refinery. **Homer H. Dedo**, consultant and section supervisor of the home office manufacturing department, has been assigned to the newly created post of automotive consultant. From headquarters in Detroit, he will undertake technical studies and liaison with automotive manufacturers.

D. S. GODSHALK has been promoted to assistant manager of Continental Oil Co.'s geophysical section, in Houston. He has been superintendent of operations in the geophysical section since 1953. **Warren L. Davis** has been named to the newly created position of division geophysicist in charge of the CATC marine region, in New Orleans. He has served as a member of geophysical crews in several states since joining the company in 1948. **D. F. Cameron** is the new chief process engineer at Conoco's Ponca City (Okla.) refinery, succeeding **J. H. Smith**. Smith transfers to Houston as regional manager of manufacturing.

E. CLYDE SEYMOUR, a vice-president since 1946, has been named senior vice-president of Magnolia Petroleum Co., Dallas. The appointment followed the retirement of **Robert M. Chan**, first vice-president, after 22 years' service with Magnolia. Other new appointments include **James T. Fitzpatrick**, from the legal department of the Beaumont refinery to the head office in Dallas; **C. W. Shelley**, from training assistant to training director in the employee relations department of the Beaumont refinery; and **Ernest J. Dickinson**, from assistant foreman to production foreman in Magnolia's Lake Charles (La.) producing district.

CITIES SERVICE OIL CO. (Del.) has consolidated the Chicago and Bartlesville (Okla.) sections of the traffic department of its supply and distribution division. **L. D. Davidson**, general traffic manager, now in Chicago, will transfer to Bartlesville headquarters. The consolidation follows the recent death of **Paul Kelly**, who headed the Bartlesville section.

JAMES A. SCANLON has been elected a director of Columbia Gas System Service Corp., New York. He will continue as vice-president, and in addition will assume the duties of vice-president—rates following the retirement of **E. R. Conner**.

KEITH L. DIEHL has been elected vice-president of Drilling & Exploration Co. of Delaware, Inc., contract drillers. He will make his headquarters in Dallas, at the home office of the parent company, Drilling & Exploration Co., Inc. He was formerly manager of drilling and production for Edwin W. Pauley, in San Antonio.

DON HULSE is in charge of the newly opened offices of Tekoil Corp. in Arvada, Colo. Hulse recently resigned his position with Union Oil Co. of California, at Ventura, to accept the Tekoil assignment.

STANLEY D. BREITWEISER has resigned as vice-president of marketing for Vickers Petroleum Co., to accept a similar position with D-X Sunray Oil Co., Tulsa. In his new capacity, he will be in charge of all D-X Sunray's marketing activities, both domestic and export. Breitweiser served with Continental Oil Co. in various capacities for 22 years before joining Vickers.

S. D. Breitweiser

M. M. Brisco

MILO M. BRISCO has been elected executive vice-president of International Petroleum Co., Ltd., Coral Gables, Fla. He has been a director of the company since May, 1957. A new assistant comptroller, **John G. Belcher**, has been named by the company. Until recently, he has been coordinator of producing and refining accounting in the comptroller's department of Esso Export Corp.

JOHN SIMONS will manage the newly opened district exploration office in Durango, Colo., for Tennessee Gas Transmission Co. **J. D. Moon** has been named landman, and **C. S. Algire** a member of the geological staff, in the new office. In Salt Lake City, **Robert W. Grace** becomes a district geologist for the company. **Ray Marvin** assumes a similar position in the Denver office, while **Jack Morris** becomes manager of exploration there.

D. R. Ford

J. E. McGeath

DON R. FORD, vice-president and former assistant manager, has been named manager of Magnolia Pipe Line Co., Dallas. **JOSEPH E. McGEATH** succeeds Ford as assistant manager. Replacing McGeath as general superintendent is **Malcolm E. Powell**, formerly assistant general superintendent. Ford, who moves into the top operating post in the company, has been with Magnolia since 1927.

WYATT NORMAN has joined Trunkline Gas Co., Houston, as district landman. He will be in charge of land department activities in the Corpus Christi district. Norman was formerly manager of the land department of Reynolds Mining Co.

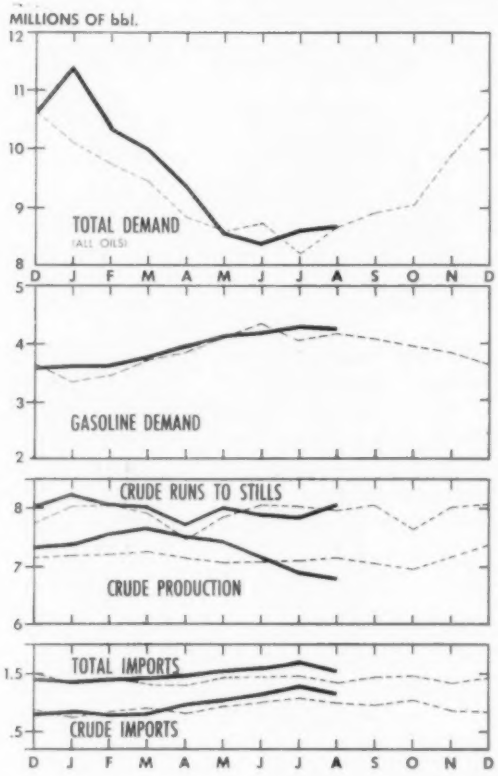
FRANK X. JORDAN has been added to the Washington (D.C.) staff of the Independent Petroleum Assn. of America, as petroleum analyst. He was formerly programming specialist in the Interior Dept.'s Office of Oil & Gas.

R. S. HEBBERD, formerly a production engineer, becomes production superintendent in the Calgary head office of Mobil Oil of Canada, Ltd. He succeeds **A. E. Barroll**, who, as previously reported, is transferring to Mobil Overseas Oil Co., in Paris. **W. T. Archbold** moves to Weyburn, Sask., as district production superintendent. He replaces **D. G. Price**, who was recently promoted to the company's Portugal affiliate. Replacing Archbold as district production superintendent in Swift Current is **A. A. MacCalder**. He has been a production foreman since 1953.

W. R. HUBER, director of public relations for Gulf Oil Corp., Pittsburgh, has been appointed director of the petroleum industry's centennial celebration, in 1959. Huber, who has been given a leave of absence by Gulf, will have offices at API headquarters in New York.

PETROLEUM WEEK'S

Fingertip Figures



TOTAL DEMAND
Latest week average 8.598
Year ago 8.648

GASOLINE DEMAND
Latest 4-week average 4.130
Year ago 4.092

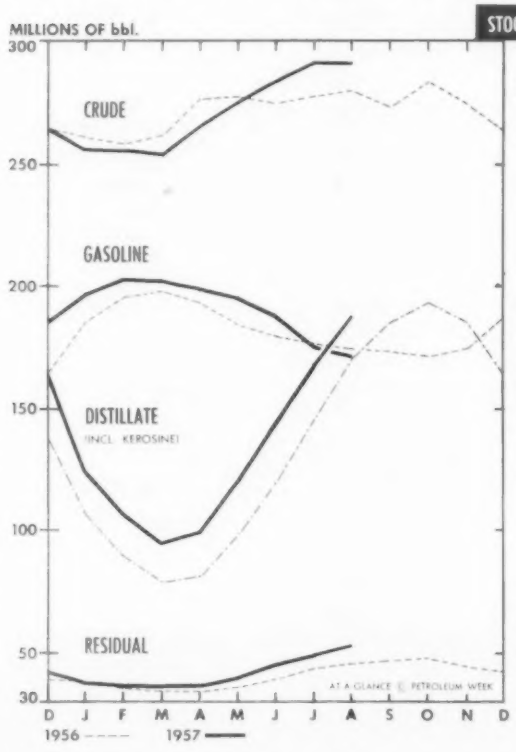
RUNS TO STILLS
Latest week 8.056
Previous week 8.270
Year ago 8.078

CRUDE PRODUCTION
Latest week 6.821
Previous week 6.807
Year ago 7.049

TOTAL IMPORTS
Latest week 1.333
Previous week 1.795
Year ago 1.494

CRUDE IMPORTS
Latest week .968
Previous week 1.400
Year ago 1.101

STOCKS



CRUDE STOCKS
Week-ended 9-7 282.5
Previous week 284.2
Year ago 273.5

GASOLINE
Latest week 173.8
Previous week 173.6
Year ago 175.8

DISTILLATES
Latest week 198.9
Previous week 194.7
Year ago 179.9

RESIDUAL
Latest week 55.2
Previous week 54.0
Year ago 48.2

Despite the continued reduced rate of U.S. crude production, chances are slim that present record inventories will be reduced significantly by the end of 1957.

Total stocks of crude and products at the end of August were 835-million bbl., up 14-million bbl. over the previous record, reached in July.

Crude stocks at the end of August totaled 290-million bbl. (based on Bureau of Mines' revised monthly data), the highest level since the end of 1938. And inventories of all products were 545-million bbl., the highest ever.

Total inventories can be expected to continue to rise until late October, reflecting the usual build-up of burning oil stocks by refiners for the winter heating season.

There is some encouragement in the outlook, however. The inventory build-up in the third quarter won't be as great as in past years. And assuming normal weather, the inventory reduction in the fourth quarter should be larger than usual.

The big addition to inventories this year occurred in the second quarter, when domestic output, imports, and refinery operations all ran considerably above the rates needed to fill demand and provide for proper stock build-up.

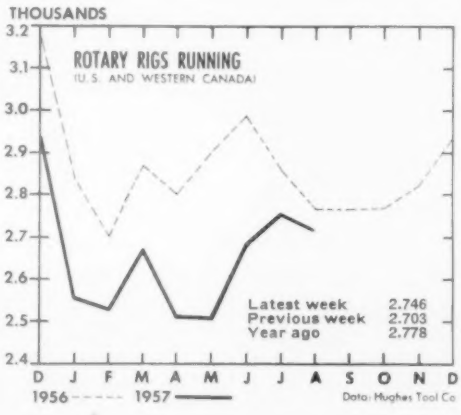
Total stocks accumulated at the rate of 953,000 b/d in the second quarter.

But with recent reductions in operations, particularly domestic crude output, the stock accumulation in the third quarter may be held to about 500,000 b/d.

And fourth-quarter reductions in stocks may run in excess of 500,000 b/d.

Even so, total stocks by the end of the year may exceed 810-million bbl., which would be equal to about an 80-day supply, the highest year-end stocks in history.

Stocks at the end of 1956 equaled a 75-day supply, and 1955 year-end stocks were equal to a 67-day supply.


THOUSANDS
ROTARY RIGS RUNNING
(U.S. AND WESTERN CANADA)
Latest week 2.746
Previous week 2.703
Year ago 2.778
D J F M A M J J A S O N D
1956 ----- 1957 ——
Data: Hughes Tool Co.

The Market Trend

AT-A-GLANCE
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PETROLEUM WEEK

The Rivers Flow Free and Easy

The winter outlook for barge shippers on the inland waterways will be free and easy—free equipment availability and easy rates. That's the way the next six months look now for the major waterways connecting the Gulf Coast with the Midwest. Unlike the fall outlook of the previous two years, there are plenty of charterable tows and barges in the spot market, and no shortage in sight. Rates are off at least 30% from 1955 and 1956.

The only factor that might knock the free-and-easy forecast for a loop is a rough winter. Either bad ice or low water, traditional winter problems on the Mississippi-Illinois waterway system, could slow down shipping over the route, increase the risks to tows, and send rates up almost overnight.

Such a free-and-easy forecast may still hold true, though, even if the winter should run colder than normal. Barring serious icing conditions on the rivers, there is an amply supply of barges available. A lot of new and speedier equipment has been built, induced apparently by inadequacies in earlier winters. Too, some shippers have switched over to pipelines. And some of the equipment that had been tied up by Ohio Standard and Pure when their refineries were closed by strikes has been released.

The Midwest is bulging with product in storage. Output from refineries in the region has been high, and probably will continue so if demand is strong. And movement of product into the area by pipeline is increasing.

The over-all result is that shippers are determined to drive a good bargain with tow owners before they'll sign for charters. Such a feeling applies to both single hauls and long-term contracts. One large Chicago fuel oil marketer comments: "I'm sure I can lay my mitts on all the tows I need anytime this fall at 0.225¢ (a ton mile), or probably less. I might not even want them, unless the winter turns out to be that bitter blitz we hope for. So why should I commit myself now unless the owner wants to make like Santa Claus?"

Current clean, long-haul Gulf-to-Chicago spot rates average 0.2¢ to 0.225¢ a ton mile. In the fall of the past two years, the rates were 0.275¢ to 0.325¢ a ton mile. A premium of 0.025¢ for the short-haul rate from West Memphis or Helena, Ark., to Chicago, common in past years, is still asked, but seldom received.

Cold Weather Wanted:

Speaking of Santa Claus, as the Chicagoan was, a long string of sub-zero days seems to be what oil marketers everywhere want most for Christmas. With distillate stocks 8.5% higher than a year ago, there could be price trouble ahead unless the winter is cold. No. 2 oil is moving at 9.25¢ a gal. in Chicago. The most optimistic sellers doubt that prices can climb to within 0.75¢ of last winter's high of 11.25¢ a gal. without an assist from the weather.

War and Peace:

Retail gasoline price wars show signs of abating in some areas, but rage on in others. Postings sank to a new low of 12.9¢ a gal (ex taxes) in West Texas. They were 5¢ below "normal" at Ft. Worth, Dallas, and Wichita Falls. Twin Cities pump prices have been dropping steady in the past month. Detroit prices, after apparently stabilizing, dropped 1¢ a gal. But prices have moved up throughout New England.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of September 16

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....13.25-14.375
- Gasoline, 92 oct reg....11.5-12.625
- Kerosine....9-11
- Heating oil, No. 2....9-10.5
- Gas oil, 48-52 d.i....9.25-10.625
- Fuel oil, bunker "C"....$2.55-3.15

Caribbean, cargoes
- Avgas, Grade 100/130....17.5
- Gasoline, 93 oct research prem....11.75
- Gasoline, 87 oct research reg....10.875
- Gasoline, 79 oct research....10.125
- Gasoline, 70-72 oct motor method....9.75
- Kerosine....9.25
- Heating oil, No. 2....9
- Gas oil, 48-52 d.i....9.25
- Fuel oil, bunker "C"....$2.55

New York Harbor, barges
- Kerosine....10.75-11.25
- Heating oil, No. 2....10.25-10.75
- Fuel oil, No. 6....$2.95

Okla-Group 3, northern, shpt, bulk
- Gasoline, 89 oct reg....12-12.25
- Kerosine....10-10.5
- Heating oil, No. 2....9-9.375
- **Fuel oil, No. 6....$1.95↓-2.15**

Chicago, bulk
- Gasoline, 91 oct reg....13-13.8
- Heating oil, No. 2....9.5-10.65
- Fuel oil, No. 6 high sulfur....8.1-8.2

Los Angeles, rack
- Gasoline, 84 oct reg....13.6
- Diesel fuel, PS 200....10-11.25
- Light fuel, PS 300....$3.40-3.65
- Heavy fuel, PS 400....$2.85-3.05

Natural Gasoline, Grade 26-70
- FOB Group 3....4
- FOB Breckenridge, Tex....3.5

LP-Gas
- Propane, Oklahoma (Group)....3.5-5

Penna Lubes
- Bright stock, 25 p.t....27
- 200 vis. neutral, 25 p.t....25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....25.5-26.5
- Neutral, solvent, 200-210 vis....21.25-22.25

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....26.5
- Neutral, solvent, 200 vis....23

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130....18.625
- Gasoline, 79 oct research....10.5
- Kerosine....10.375
- Gas oil, 48 d.i. minumum....10.375

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9....3.07
- North Dakota, 36.0-36.9....3.07
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....3.07-3.22
  - West Texas, sweet, 36.0-36.9....3.07
  - West Texas, N. M., inter., 36.0-36.9....3.00
  - West Texas, N. M., sour, 32.0-32.9....2.86
  - East Texas, flat....3.25
  - Mirando, 28.0-28.9....3.31
- Illinois Basin, flat....3.15
- Pennsylvania Grade, Bradford dist. flat....4.65
- California Signal Hill, 21.0-21.9....2.93†
- North Louisiana-Arkansas, 36.0-36.9....3.20
- Wyoming sweet, 36.0-36.9....3.00
- Wyoming sour, 32.0-32.9....2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.)....2.68
- Leduc-Woodbend (Alta.)....2.74
- Redwater (Alta.)....2.63
- Daly (Man.)....2.46
- Smiley (Sask.)....2.40

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido....3.75
- San Joaquin, 41.0-41.9, Puerto la Cruz....3.34
- Oficina, 35.0-35.9, Puerto la Cruz....3.05
- Tia Juana, Medium, 26.0-26.9, Amuay....2.55
- Bachaquero, flat, Amuay, Las Piedras....2.23
- Tarra, 38.0-38.9, San Lorenzo....3.08
- Lagunillas Heavy, flat, Amuay, Cardon....2.38

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....2.08
- Safaniya, 27.0-27.9, Ras Tanura....1.79
- Iran, 34.0-34.9, Bandar Mashur....2.04
- Iran, 34.0-34.9, Abadan....1.99
- Iraq, 35.0-35.9, Fao....1.98
- Kuwait, 31.9-31.9, Mina-al-Ahmadi....1.85
- Qatar, 41.0-41.9, Umm Said....2.23

Middle East, Eastern Mediterranean
- **Arabian, 36.0-36.9, Sidon....2.59↓**
- **Iraq, 36.0-36.9, Tripoli, Banias....2.59↓-2.69**

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, 37-38....2.75

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- **U.S. Gulf-New York, clean....(USMC —35%) $1.85†**
- U.S. Gulf-New York, dirty....(USMC —35%) $1.85
- NWI-USNH, dirty....(USMC 55%) $1.22
- NWI-UK/Cont., dirty....(Scale —30%) 22/9*
- Persian Gulf-UK/Cont., dirty....(Scale —57½%) 26/7*
- Persian Gulf-USNH, dirty....(USMC —50%) $6.35

**Sterling*

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Boston 6 — Edward A. Callahan, Jr., 350 Park Square Bldg., Hubbard 2-7160

Chicago 11 — W. F. Holbrook, 520 North Michigan Avenue, Mohawk 4-5800

Cleveland 15 — J. E. MacArthur, 1510 Hanna Bldg., Superior 1-7000

Houston 25 — D. O. Hanson, 724 Prudential Bldg., Jackson 6-1281

Los Angeles 17 — Peter S. Carberry, 1125 W. Sixth St., Madison 6-9351

New York 36 — Edward A. Callahan, Jr., Donald R. Thompson, 500 Fifth Ave., Oxford 5-5959

Philadelphia 3 — W. A. Potter, Architects Building, Rittenhouse 6-0670

San Francisco 4 — William C. Woolston, 68 Post Street, Douglas 2-4600

Tulsa 3 — J. A. Hartley, 909 Enterprise Bldg., 522 South Boston, Gibson 7-5594

England, London E. C. 4 — Herbert Lagler, McGraw-Hill Co., Ltd., 95 Farrington St.

DEPT/Service & Equipment Companies

W. O. KUPPER is the new manager of sales projects, a new division of Jones & Laughlin Supply division. He has been assistant sales manager of Ladish Co. since 1944. For a short period, he will be based in J&L's Houston office, before moving to company headquarters in Tulsa.

H. Szepanek

W. O. Kupper

HANS SZEPANEK of Celle, Germany, has been appointed technical representative for West Germany and Austria of Baker Oil Tools, Inc. He joined Baker in May, 1957, after spending seven years with Gewerkschaft Elwerath, in Germany. Since May, he has has been training in the U. S., at the company's Houston and Los Angeles facilities and in the Texas, California, and New Mexico oil fields.

HARRY F. POLL has been named process development manager of Ehrhart & Associates, Inc., Los Angeles and San Francisco engineering and construction firm. He was formerly process engineering supervisor for Union Oil Co. of California.

WILLIAM H. COOK has been appointed to the scientific advisory board of Hycon Aerial Surveys, Inc., Pasadena, Calif. He is a member of the civil engineering faculty of Loyola Unversity, Los Angeles. Hycon performs both photographic and geophysical surveys and maintains photogrammetric and geophysical data reduction facilities in Pasadena.

ROBERT K. STERN has been appointed president of Mid-Century Instrumatic Corp., New York manufacturer of analog computers. He was formerly vice-president and general manager of Fischer & Porter Co.'s data reduction and automation divition, in Hatboro, Pa.

ERNIE GRAVES CO. has been appointed sales representative for Win-Well Mfg. Co., Los Angeles.

DWIGHT A. BESSMER has been elected executive vice-president of Timken Roller Bearing Co. Since 1953 he has been a vice-president of the company.

J. WILLIAM ROBINSON is president of a new company, Leeds & Northrup, Canada, Ltd, a wholly-owned subsidiary of Leeds & Northrup Co., of Philadelphia. The Toronto-based subsidiary will manufacture and distribute the electronic controls and measuring instruments formerly supplied from the U. S. Other new staff members are: **J. Robert Gowen**, production manager; **R. C. Park**, office manager.

HELEN F. LYONS will head the new advertising and public relations department for Smith-Blair, Inc., San Francisco manufacturer of couplings and other pipeline accessories. Her experience in the advertising field includes positions with a truck-trailer firm and the Northern California chapter office of a national heatlh agency.

DAVID W. PEAKE has been made a full partner of S. D. Day Co., Houston, manufacturer's representative in the pipeline coating and allied products field. He has been sales manager in charge of all marketing operations, including advertising, promotion, and public relations.

HARRY A. RILEY, JR., will manage sales of the wholesale division of Southwestern Plastic Pipe Co., Mineral Wells, Tex. He has been a sales representative in charge of sales development work since joining the company early this year.

CLIMAX ENGINE MFG. CO. is the new name of the company formerly known as Climax Engine & Pump Mfg. Co. It is a division of Eversharp, Inc. Shrimpton Mfg. & Supply Co. and Canadian Fairbanks-Morse Co., Ltd., have been named distributors of Climax engines in California and Canada, respectively. **James K. Slusser** has been appointed district representative for the company in California. He will maintain headquarters at Westminster.

B. W. TRAVER is the engineer in charge of Northern Pump Co.'s North Dakota office, recently moved from Williston to Dickinson.

E. J. BYRNE has been named petroleum industry manager for Minneapolis-Honeywell Regulator Co.'s industrial division. For the last four years, he has been industrial sales manager at Houston. **Paul R. Sharadin** and **C. D. Walker** have been named Dallas and Houston industrial managers. Sharadin succeeds **Robert Harris**, who will manage the Tulsa district. Walker succeeds Byrne. **K. R. Knoblauch** will devote full time to his duties as chemical industry manager. He was formerly metals processing industry manager.

CHARLES B. ROBBINS is returning to the U. S. as assistant to **Carl B. Whyte**, president of Procon, Inc., Des Plaines (Ill.) process construction company serving the refining, chemical, and petrochemical industries. **James R. Britt**, formerly manager of the chemical plants division at the home office, replaces Robbins as general manager of Procon's British subsidiary, in London.

W. AL WOLFF becomes president of Oil Center Tool Co., Houston, replacing **John F. Maher**, who has retired. Maher will continue to be associated with the company in an advisory capacity. Wolff was formerly

western manager of the John Bean division of Food Machinery & Chemical Corp., parent company of OCT.

JACK W. THIGPEN has been promoted to sales manager of Herb J. Hawthorne, Inc., Houston manufacturer of replaceable-blade drilling bits. He has been administrative assistant since 1955.

BILL DEAMER, store manager of the recently closed Williston (N. D.) office of Vance Supply Co., will manage the new store in Farmington, N. M.

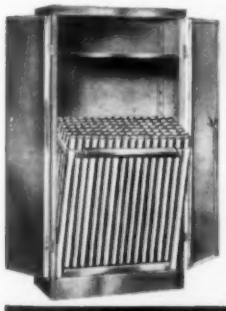
KENNETH W. O'CONNOR has been named Southern Texas regional sales manager of Tubular Lining Corp., Houston processor of plastic linings for oil field tubular goods. Since January, when he joined the company, O'Connor has been a member of the training program in production, research, and office procedures.

K. W. O'Connor

W. L. Pringle

WILLIAM L. PRINGLE has been elected president and a director of Hercules Motors Corp., Canton (Ohio) manufacturer of gasoline and diesel engines. Pringle, former director of engineering for the Long Mfg. division of Borg-Warner Corp., succeeds **John C. Keplinger,** who has retired as president but will continue as a director and executive consultant. **Henry H. Timken, Jr.,** board chairman of Timken Roller Bearing Co., has been elected board chairman at Hercules. He succeeds **Charles Balough. Walter F. Rockwell,** chairman of the finance committee of Rockwell Mfg. Co., also has been elected a director at Hercules.

GILBERT D. DOROFF will manage national sales of mobile products for Bendix Radio Division of Bendix Aviation Corp., Baltimore. **Frank R. Viafora** replaces Doroff in Chicago as midwest regional manager of two-way mobile products.



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SCOTT-RICE CO., 610 S. Main, Tulsa 3, Okla

CLASSIFIED

DISPLAYED RATE

The advertising rate is $12.60 per inch for Equipment and Business Opportunity advertising appearing on other than a contract business.

EMPLOYMENT OPPORTUNITIES

The rate is $17.05 per inch. Subject to Agency Commission.

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$1.50 a line. Minimum 3 lines. Box numbers count one additional line.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

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AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page.

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Replies (Box No.): Address to office nearest you c/o This Publication Classified Adv. Div.
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POSITION VACANT

Chemical Engineer—Excellent opportunity with a West Coast Independent Oil Company (San Joaquin Valley). Refinery Experience, Process Design and Operation essential. Must have Engineering Degree. Salary commensurate with ability and experience. Reply outlining personal history, photograph and work background. P-6098, Petroleum Week.

POSITION WANTED

Chemical Engineer: Executive or managerial caliber, strong technically; A.I.Ch.E., registered engineer, etl. Research, development, sales experience. Top team member with capacity for details, organization policy formulation, and execution; wide acquaintance in petroleum industry; international contacts and experience. Can extend staff from former associates. PW-6150, Petroleum Week.

BUSINESS OPPORTUNITY

2500 Acre 5 year lease block for sale. Present development on structure showed oil and gas in commercial quantities. Pima County, Arizona. For details, Logs of wells drilled, Geological Report, etc., write Lund Engineering Company, 3411 North 14th Place, Phoenix, Arizona.

FREE BOOKLET

If you are a $5,000-to-$20,000 investor you should have our free folder, What Is A Royalty, for higher monthly income than possible elsewhere. Address PW Operator Box 2153, Denver, Colorado. No stocks for sale. Banking references.

What is Your Need?

Do you need competent men for your staff? Men experienced in the oil industry. Men to fill executive, sales or technical positions?

Or are you looking for—or offering—a business opportunity of special interest to men in the industry served by this publication?

Or are you seeking buyers for surplus used equipment, or want to buy such equipment? The solution of any of these needs can logically be found first among other readers of Petroleum Week. You can get the attention, at small cost, through an advertisement in this "CLASSIFIED" Section of PETROLEUM WEEK.

OVERSEAS OPPORTUNITIES

with affiliate of

STANDARD OIL COMPANY (N. J.)

in

PERU & COLOMBIA, SOUTH AMERICA

Petroleum Engineers

Degree plus 2 to 8 years experience

Drilling Engineers

Degree plus 3 years as Drilling Engineer and total 5 years in Petroleum industry

Cost Engineer

Degree, must be well grounded in Crude Oil Producing Operations to deal with cost control problems, analysis of operating expenses, capital budgets, etc.

Gasoline Plant Engineer

Degree plus several years experience in Petroleum Process and Plant Design.

Attractive salaries & bonuses, liberal benefits and vacations, family accommodations available.

WRITE giving age, marital status, education and details of previous experience.

Box 308-T
RADIO CITY STATION
New York 19, N.Y.

Recond. BLACK PIPE

50,000 ft. 16" O.D.—¼" wall, 42 lbs. per ft. 16' to 20' lengths, plain end. Very good used condition. Phone, write or wire.

BROWN-STRAUSS CORP.
1546 Guinotte—Kansas City, Mo.
Phone HA. 1-1000

BUSINESS OPPORTUNITIES

Use this Classified Advertising Section for bringing business needs or opportunities to the attention of men associated in administrative, executive, management, sales and responsible technical, engineering and operating capacities within the oil industry.

PETROLEUM WEEK

A Boost for U.S. Foreign Policy

WHEN PEOPLE in Washington talk about the foreign operations of the U.S. oil industry, it's usually in critical tones.

Ever wonder why this is?

Maybe it's because people in Washington never lost their shirts overseas drilling in dry-hole country. And then had to dig down for more millions of high-risk dollars—money that might be earning a safe profit elsewhere.

Maybe these people have never fought through the tangle of foreign currency restrictions. Or had a foreign government fine them thousands of bolivares for a single typing mistake on a foreign import declaration.

Maybe they have never been required to comply with unfair government restrictions, or else abandon their overseas investments.

Maybe they have never had to order equipment 18 months in advance, or wait two months for freighter space, or ten days to get an airmail letter. Or tried to haul 10,000 tons of drilling equipment over a jungle road that didn't exist.

A LOT OF INDUSTRY COMPANIES have a lot of times—especially the overseas oil pioneers such as Jersey Standard, Socony, Gulf, California Standard, and Texaco; the equipment companies such as National Supply and Ideco; the refinery service firms such as Foster Wheeler, Kellogg, and Lummus; the contractors such as Loffland Bros. and Sante Fe Drilling Co.; and dozens of other large and small firms now operating successfully overseas.

Among other things, a little firsthand experience might give people in Washington a clearer view of the contribution these companies are making to the economic strength of the free world and to the fight against communism.

U.S. oil companies and their affiliates have poured billions of dollars, in royalties and taxes, into the treasuries of foreign countries. Oil and equipment firms alike are building up foreign economies by spending a good part of their overseas income with local merchants. The companies are contracting out transportation, supply, and other services to businessmen abroad. And some are contributing to the education of nationals, and to the improvement of health and living standards.

GRANTED the industry companies are in business for a profit. The fact remains that they have given a full measure of service, and more, for this profit. They have opened new channels of communication with other lands, and spread through the world a better idea of American knowhow and our way of life.

AN INDEPENDENT STUDY OF 199 WELLS REVEALS–

a 523% increase in production with Dowell high-injection-rate fracturing

A 523 per cent average increase in production resulted when 199 wells in the Grayburg limestone of West Texas' Johnson-Foster-South Cowden Field were given high-injection-rate fracturing treatments by Dowell. Average well potential jumped from 13 barrels per day to 81 when wells were treated with Sandfrac®, using an average of 20,000 gallons of refined oil and 40,000 pounds of sand per well.

While the relatively large amounts of oil and sand used in the treatments were important, the operators who made this study generally agreed that the high average injection rate of 32 barrels per minute was the most important single factor. On some wells, injection rates averaged 63 bpm.

Many of these wells were old and had been given a variety of earlier treatments, including shooting and acidizing.

Porosity of the Grayburg in this pool ranges from 9 to 15 per cent, and permeabilities range from less than one to several hundred millidarcys.

Put Dowell to work for you on your next fracturing job. No other company has had more experience in high-injection-rate fracturing. No one else has the powerful remote-controlled Allison Pumpers . . . you get this only from Dowell.

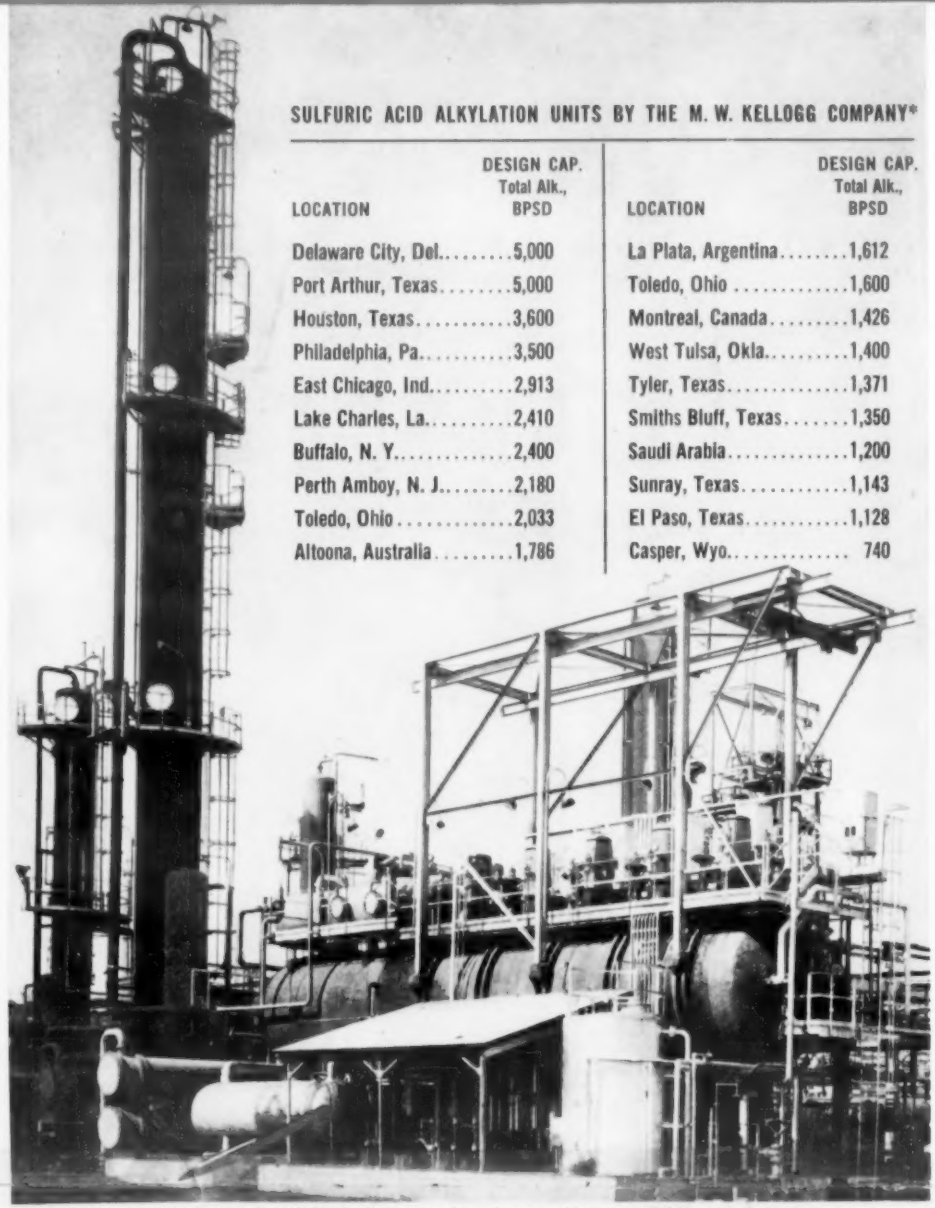
For more information or service, call any of the 165 Dowell offices in the United States and Canada; in Venezuela, contact United Oilwell Service. Or write Dowell Incorporated, Tulsa 1, Oklahoma.

Services for the oil industry

DOWELL

A SERVICE SUBSIDIARY OF THE DOW CHEMICAL COMPANY

Today's Ultimate in ALKYLATE



SULFURIC ACID ALKYLATION UNITS BY THE M. W. KELLOGG COMPANY*

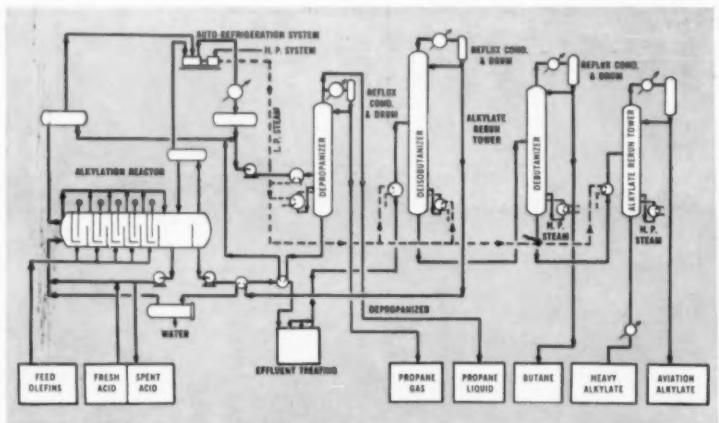
LOCATION	DESIGN CAP. Total Alk., BPSD	LOCATION	DESIGN CAP. Total Alk., BPSD
Delaware City, Del.	5,000	La Plata, Argentina	1,612
Port Arthur, Texas	5,000	Toledo, Ohio	1,600
Houston, Texas	3,600	Montreal, Canada	1,426
Philadelphia, Pa.	3,500	West Tulsa, Okla.	1,400
East Chicago, Ind.	2,913	Tyler, Texas	1,371
Lake Charles, La.	2,410	Smiths Bluff, Texas	1,350
Buffalo, N. Y.	2,400	Saudi Arabia	1,200
Perth Amboy, N. J.	2,180	Sunray, Texas	1,143
Toledo, Ohio	2,033	El Paso, Texas	1,128
Altoona, Australia	1,786	Casper, Wyo.	740

*List shows only units utilizing Kellogg's Cascade Reactor. Kellogg has also engineered and built many alkylation units of other types.

Measured by every standard . . . by quality and quantity of yield . . . by initial investment . . . by operating costs . . . M. W. Kellogg's sulfuric acid alkylation process is bringing optimum results to an increasing number of leading refiners both at home and abroad.

With its present advanced design, utilizing the company's unique multiple-stage cascade reactor and auto-refrigeration system, Kellogg alkylation offers the ultimate today in high isobutane efficiency, low acid consumption, low outlay for recycle and auxiliary equipment, and low utilities cost.

The M. W. Kellogg Company welcomes the opportunity to describe this alkylation process in detail, and to acquaint refiners with the improvements its engineers are continually making toward still greater economy and efficiency.



Refinery Process Division

The M. W. Kellogg Company

711 Third Avenue, New York 17, N.Y.

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